REPORT UAG-102

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for
Solar-Terrestrial Physics

CATALOGUE OF CORONAL HOLES
1970-1991

October 1992

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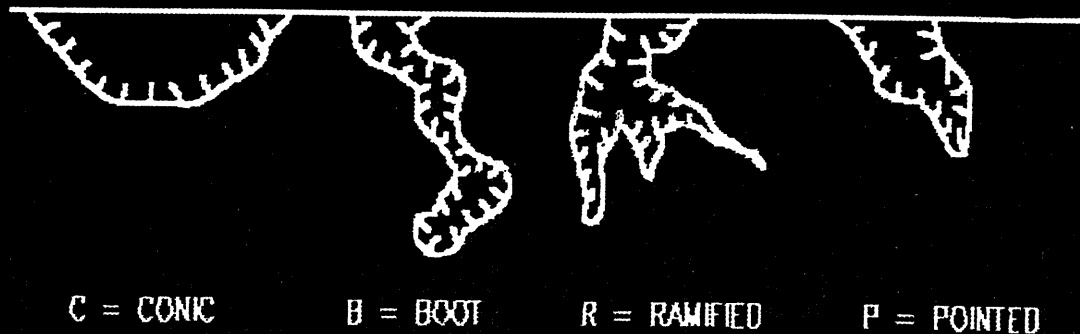

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WORLD DATA CENTER A
for
Solar-Terrestrial Physics

REPORT UAG-102

CATALOGUE OF CORONAL HOLES 1970-1991

by

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1. INTRODUCTION

Coronal Holes were first noted as "M" regions that produced periodic geomagnetic disturbances. These were first observed in 1970 by instruments on the Orbiting Solar Observatory (OSO) satellites, and also were noted with optical observations during the total solar eclipse of March 7, 1970. The Apollo Telescope Mount (ATM) on the Skylab manned mission observed in short wavelengths the real nature of Coronal Holes as regions of lower density and temperature than the rest of the solar corona. Three observational periods from Skylab produced substantial data on the development of Coronal Holes as well as their relationship with other types of solar activity.

After Skylab, although Coronal Holes were later deduced from radio observations, the main data were obtained by observing the He I 10830A line at the Vacuum Solar Telescope at Kitt Peak National Observatory. These data, continuous from 1977 to date, were published in **Solar-Geophysical Data** (SGD) as Helium synoptic charts by Carrington Rotation or as Coronal Hole contours plotted on H-alpha synoptic charts.

The Skylab observations of Coronal Holes were the subject of exhaustive examination. However, the main data source on Coronal Holes currently are the synoptic maps published in SGD. This catalogue was motivated by the lack of a global reference guide. It Intends to help many statistical researchers by making it easier to work with more organized information spanning a little more than one and a half solar cycles. Although this catalogue is based only on summary data for each Carrington Rotation, it presents interesting values and enough data to analyze several aspects of the evolution of Coronal Holes.

2. DATA SOURCES

All the data used for this catalogue were taken from synoptic charts based on Carrington rotations. To determine the polarity of every Coronal Hole, and to identify it over several Carrington rotations, the contours of Coronal Holes were copied to H-alpha synoptic charts, although measurements were made on the original source. Magnetograms from Kitt Peak National Observatory were also used for this purpose.

- For Carrington Rotation 1558, Coronal Holes were plotted on H-alpha synoptic charts based on spectroheliographic observations made from OSO-6, and also from observations made during the total solar eclipse of March 7, 1970 (Webb et al., 1984)

- Data of Coronal Holes observed in Carrington Rotation 1568 are also based on observations from OSO-7 (Maran et al., 1973).

- Coronal Hole data for Carrington Rotation 1601 to 1610 were obtained from contours plotted in H-Alpha synoptic charts, based on X-ray observations from Skylab (Hanson et al., 1980; Bohlin et al., 1978).

- Data for Carrington Rotation 1623-27 and 1633-35, were provided by J. Harvey as synoptic maps taken from He I images.

- Coronal Hole data for Carrington Rotation 1628-32, 1636-39, 1645-47, and 1649, were taken from He I synoptic maps which appeared in SGD.

- Data for Carrington Rotation 1650-1715 were published in SGD as synoptic maps.

- From Carrington Rotation 1716 to 1828, Coronal Holes data were taken from contours plotted on H-alpha synoptic charts published in SGD (no data for Carrington Rotation 1807).

- Synoptic maps for Carrington Rotation 1830-1849 were provided by J. Harvey of NSO (with no data for Carrington Rotation 1829, 1834, 1841, and 1845).

All that data were contrasted with the **Atlas of Stackplots** Report UAG-101 (McIntosh, 1991), including data for several Carrington Rotation missed in the sources mentioned above.

In summary, data of Coronal Holes were obtained for 234 Carrington rotations spanning 21 years of observations. Data for nine Carrington rotations were lost because of the time when ground-based observations started. See Table 1 on page 9. Table 2 on pages 10-13 lists the dates of commencement of Carrington rotations 1557-1878 covering the years 1970-1991.

3. TYPES, IDENTIFICATION AND CLASSIFICATION CRITERIA

3.1 Types

Data spanning 21 years made it possible for us to recognize some of the Coronal Holes behavior, and allowed us to classify and identify them. Coronal Holes are almost permanently visible on solar poles, except at the time of the maximum of solar cycle, when polarity inversion occurs. It is very common that coronal holes on solar poles expand to lower solar latitudes, following a sector of equal polarity. Moreover, isolated coronal holes appear at several latitudes at any time, connecting or disconnecting with holes prolongated from the pole.

We classified coronal holes by two types: those which are an extension from the Coronal Holes at the poles (Polar Coronal Holes), and those which are isolated at any latitudes (Equatorial Coronal Holes).

Polar Coronal Holes were identified as such when they were extended below $\pm$60 degrees of heliographic latitude. Exceptions were made when the global polar coronal hole passed below $\pm$60 degrees of latitude but did not produce a well-developed extension of the hole.

Equatorial Coronal Holes were recognized as such when they were not connected with any Polar Coronal Holes and were present at any latitude. Even during the polarity inversion at the maximum of the cycle, Equatorial Coronal Holes were visible at very high latitudes. Connections and disconnections between both kinds of Coronal Holes are noted in the catalogue.

Based on this selection, the catalogue was divided in two parts, one for Polar Coronal Holes and another for Equatorial Coronal Holes.

3.2 Identification

Both kinds of Coronal Holes were identified by a consecutive number following the chronological order of apparition, and from higher to lower value of Carrington Longitude (from 360 to 00 degrees), independent of their heliographic latitude. When two Coronal Holes coincided in the Carrington longitude, we first classified the Coronal Hole visible in the Northern Hemisphere, and then the one in the Southern Hemisphere. The identification given to the Coronal Holes observed by Skylab (Bohlin and Sheeley, 1978) are noted in the remarks.

The identification of the hole when it persisted for two or more Carrington Rotations was more complex. The main criteria to recognize the same Coronal Hole as such was the displacement of photospheric sectors of the main polarity. This also let us identify Coronal Holes when they had a strong drift both in heliographic latitude or longitude. So, the evolu-

tion of photospheric polarity sectors was also analyzed on each Carrington rotation. However, sometimes the identification was not very easy. Doubts about this parameter are noted in the remarks.

Sometimes, two or more Coronal Holes of both or different types could have some relation to each other during the rotation (their positions may relate), although this is not necessarily a connection or disconnection. In these cases, a possible relation is noted for both holes involved. On the other hand, a hole was considered connecting or disconnecting with another one depending on the persistence of itself. Usually in these phenomena implying a Polar Coronal Hole and an Equatorial Coronal Hole, we denote for the Polar Coronal Hole only its relation with the Equatorial Coronal Hole, and the Equatorial Coronal Hole is noted as the hole that connects or disconnects to the Polar Coronal Hole.

For each type of Coronal Hole, the catalogue is divided into a general list and a particular list. The general list presents all the Coronal Holes (see List 1 and List 2). Coordinates and extension values are average values for those Coronal Holes that were visible for more than one Carrington Rotation The particular list presents only the Coronal Holes visible for more than one Carrington Rotation with their specific values of coordinates and extension for each Carrington Rotation (see List 3 and List 4).

3.3 Shape Classification

To make the identification of each Coronal Hole in the synoptic charts easier, and also to explore a possible evolution of it, a shape classification is introduced in the catalogue (see Figure 1).

- Polar Coronal Hole shapes are divided into conic (C), booted (B), ramified (R), sharp pointed (P), irregular (I), elongated (E), dumbbell (D), and square (S).

- Equatorial Coronal Hole shapes are divided into almost circular (C), elongated (E), ramified (R), irregular (I), and elliptical (E).

A Classification for each Coronal Hole was made for every Carrington Rotation.

4 CHARACTERIZATION

4.1 Identification -- Coronal Hole Number
For both parts of the catalogue (polar and equatorial), every Coronal Hole received a consecutive number in chronological order from higher to lower Carrington longitude for each Carrington rotation.

4.2 Time observed -- Carrington Rotation
Carrington rotation(s) where the Coronal Hole was visible.

4.3 First observation -- Year
Year of the first Carrington rotation when the Coronal Hole was observed.

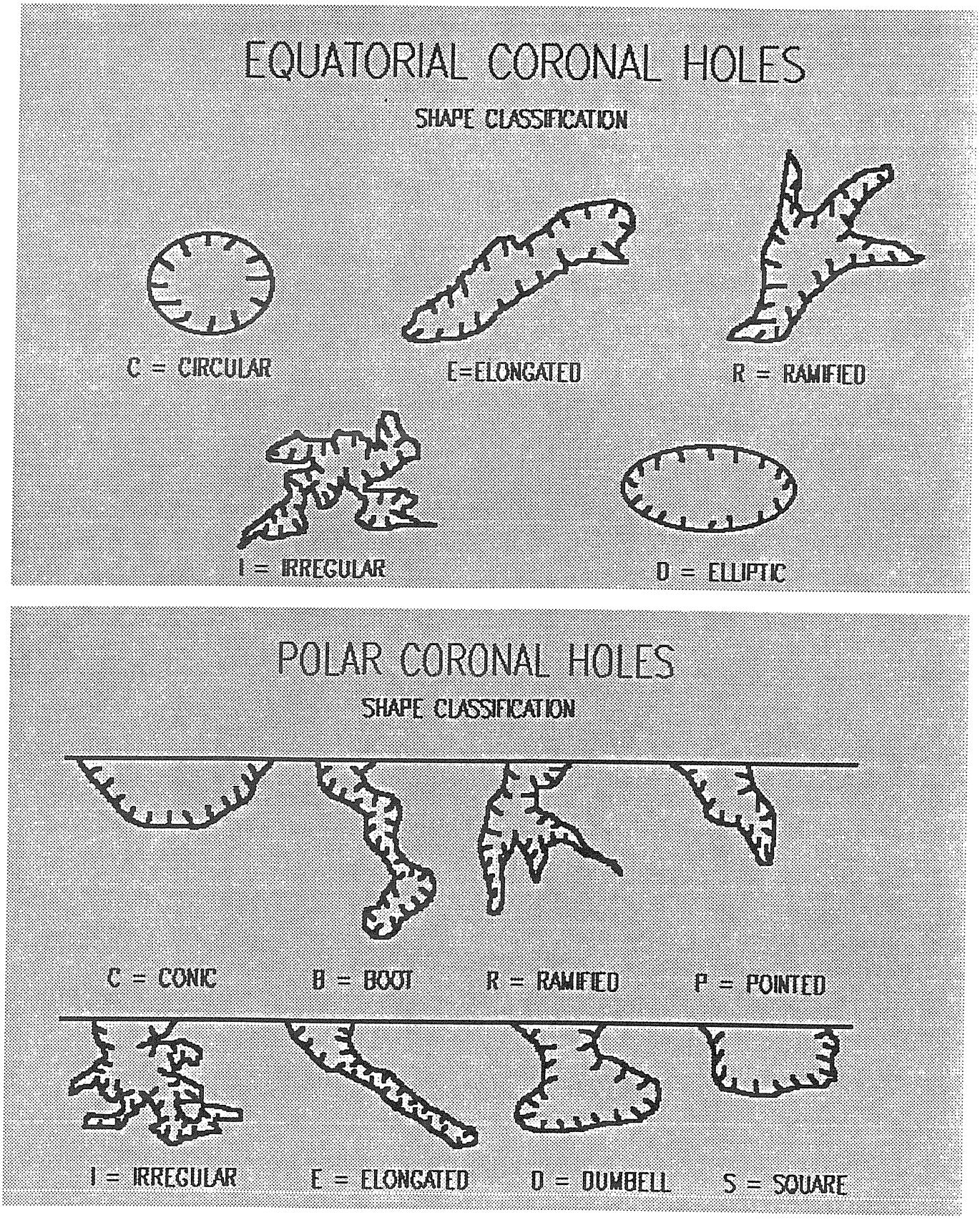

Fig. 1. We show the five Shape Classifications of the Equatorial Coronal Holes and the eight Shape Classifications of the Polar Coronal Holes.

4.4 Heliographic latitude -- Heliographic Latitude
Heliographic latitude of the hole measured at the middle point between its northern and southern limits.

4.5 Carrington longitude -- Carrington Longitude
Carrington longitudes of the hole measured at the middle point between its eastern and western limits.

4.6 Extension in heliographic latitude -- Extent in Latitude
Extension measured in degrees on the northern and southern limits of the hole.

4.7 Extension in Carrington Longitude -- Extent in Longitude
Extension measured in degrees on the eastern and western limits of the hole.

4.8 Polarity -- Polarity
Magnetic polarity of the hole, based on the dominant polarity of the polar hole (if it is a Polar Coronal Hole) or in the polarity of the sector (if it is an Equatorial Coronal Hole).

4.9 Shape -- Shape
Shape classification of the hole. See page 4 or Figure 1 on page 5.

4.10 Remarks -- Remarks
The remarks are spelled out here. However, these data are available in digital form from WDC-A for STP or from the author. Remarks are compressed with the following definitions:

1(...) Related to...(hole identification).
2(...) Connected to...(hole identification).
3(...) Disconnected from...(hole identification).
4(...) Reapparition of...(hole identification).
5 Uncertainty in position.
6 The hole drifted to the next Carrington rotation, based on its longitude and latitude.
7 The hole drifted to one Carrington rotation before. It is labeled based on its longitude.
8 Uncertainty in drawing, mostly when photographic synoptic charts were used for identification.
9 Deduced -- When the Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
10(...) Strong development (hole identification).
11 Only Carrington Longitude drifted to next Carrington rotation.
12 No data.

5. COMPUTED PARAMETERS

Measurements of Coronal Holes were made on the position and the extension over boundaries marked in the synoptic charts. Both heliographic latitude and Carrington longi-

tude of each hole were measured in the middle points of their north-south and east-west boundaries.

Extensions or ramifications of the holes that represented less than 1/6 of their size both in latitude or longitude were not taken into account as an edge of the boundary. Latitudes N60 and S60 were always at the highest limits for measurements for heliographic latitude and extensions of Polar Coronal Holes. The precision of the measurements is about ± 1 degree. When boundaries were uncertain, it was noted. Extensions in both heliographic latitude and longitude were based on the same limits.

There are plans to extend this catalogue every two years on the same basis.

6. ACKNOWLEDGMENTS

We gratefully acknowledge Dr. J. Harvey who provided us with several synoptic maps including those that were unpublished when he started identifying Coronal Holes on Helium images. The National Solar Observatory of NOAO kindly permitted us access to their files. Also we acknowledge the revisions and assistance of P. Navarro, A. Cruz, M. Ayala, M.A. Norzagaray, M. Pedroza, C. Calcaneo, and M. Ruiz.

7. REFERENCES

BOHLIN, J.D. and D.M. RUBENSTEIN 1975 "Synoptic Maps of Solar Coronal Hole Boundaries derived from He II 304 A Spectroheliograms from the Manned Skylab Missions", Report UAG-51, NOAA, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado, USA 80303-3328, 21 pp.

BOHLIN, J.D. 1977 "Extreme-Ultraviolet Observations of Coronal Holes, Solar Phys, 51, 377-398.

BOHLIN, J.D. and N.R. SHEELEY, JR. 1978 "Extreme-Ultraviolet Observations of Coronal Holes" Solar Phys., 56, 125-151.

HANSON, J.M., E.C. ROELOF, and R.E. GOLD 1980 "Solar Observations During Skylab (April 1973 - February 1974)", Report UAG-79, NOAA, World Data Center A for Solar-Terrestrial Physics, Boulder, Colorado, USA 80303-3328, 43 pp.

HARVEY, J., J.B. GILLIESPE, P. MIEDANER, and C. SLAUGHTER	1980	"Synoptic Solar Magnetic Field Maps for the Interval including Carrington Rotations 1601-1680 (May 5, 1973-April 26, 1979)", Report UAG-77, NOAA, CC. World Data Center A for Solar-Terrestrial Physics, Boulder, Colorado, USA 80303-3328, 66 pp.
MARAN, S.P. and R.J. THOMAS	1973	"The OSO-7 Year of Discovery", The New Astronomy and Space Science Reader, J.C. Brandt and S.P. Maran, Editors, W.H. Freeman and Company, San Francisco, USA, pp. 295-301.
McINTOSH, P.S.	1975	"H-Alpha Synoptic Charts of Solar Activity for the Period of Skylab Observations (May 1973-March 1974)", Report UAG-40, NOAA, World Data Center A for Solar-Terrestrial Physics, Boulder, Colorado 80303-3328, USA, 32 pp.
McINTOSH, P.S.	1979	"Annotated Atlas of H-Alpha Synoptic Charts for Solar Cycle 20 (1964-1974)", Report UAG-70, NOAA, World Data Center A for Solar-Terrestrial Physics, Boulder, Colorado, USA 80303, 327 pp.
McINTOSH, P.S.	1991	"Atlas of Stackplots", Report UAG-101, NOAA World Data Center A for Solar-Terrestrial Physics, Boulder, Colorado, USA, 80303-3328, 188 pp.
SANCHEZ-IBARRA, A.	1990	"Longitudinal and Temporal Variations of Sunspot Regions and Coronal Holes During Cycle 21", Solar Phys., 125.
Solar-Geophysical Data	1970-91	NOAA, World Data Center-A for Solar-Terrestrial Physics, NGDC, Boulder, Colorado, USA, 80803.
SPEICH, D.M., J.B. SMITH, JR., R.M. WILSON, and P.S. McINTOSH	1978	"Solar Activity during Skylab -- Its Distribution and Relation to Coronal Holes", NASA Technical Memorandum 78166, Marshall Space Flight Center, Alabama, USA.
TIMOTHY, A.F. and A.S. KRIEGER	1975	"The Structure and Evolution of Coronal Holes", Solar Phys., 42, 135-156.
WEBB, D.F., J.M. DAVIS, and P.S. McINTOSH	1984	"Observations of the Reappearance of Polar Coronal Holes and the Reversal of the Polar Magnetic Field", Solar Phys., 92, 109-132.

Table 1. DATA SOURCES

Carrington Rotation	SOURCE
1658	Webb, Davis, and McIntosh, 1984; Maran and Thomas, 1973; SGD
1601-1610	Roelof and Gold, 1980; Bohlin and Sheeley, 1978; McIntosh, 1991; SGD.
1623-1628	Harvey, NSO; SGD.
1629-1632	McIntosh, 1991; SGD.
1633	Harvey, NSO.
1634-1635	Harvey, NSO; McIntosh, 1991; SGD.
1636-37	McIntosh, 1991; SGD.
1638	Harvey, NSO.
1639	McIntosh, 1991.
1640-1641	No data.
1642	McIntosh, 1991.
1643-1644	No data.
1645-1647	McIntosh, 1991; SGD.
1648	No data.
1649-1796	McIntosh, 1991; SGD.
1797-1805	SGD.
1806	Harvey, NSO.
1807	No data.
1808-1828	SGD.
1829	No data.
1830	Harvey, NSO.
1831	SGD.
1832-33, 1835-40	Harvey, NSO, (No data for 1834).
1841	Harvey, NSO; SGD.
1843-44, 1846-49	Harvey, NSO, (No data for 1845).

Table 2. **SYNODIC ROTATION NUMBERS 1970-1993**

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1557	1970	JAN	21.3
1558	1970	FEB	17.6
1559	1970	MAR	17.0
1560	1970	APR	13.3
1561	1970	MAY	10.5
1562	1970	JUN	6.7
1563	1970	JUL	3.9
1564	1970	JUL	31.1
1565	1970	AUG	27.3
1566	1970	SEP	23.6
1567	1970	OCT	20.9
1568	1970	NOV	17.2
1569	1970	DEC	14.5
1570	1971	JAN	10.8
1571	1971	FEB	7.2
1572	1971	MAR	6.5
1573	1971	APR	2.8
1574	1971	APR	30.1
1575	1971	MAY	27.3
1576	1971	JUN	23.5
1577	1971	JUL	20.7
1578	1971	AUG	16.9
1579	1971	SEP	13.2
1580	1971	OCT	10.5
1581	1971	NOV	6.8
1582	1971	DEC	4.1
1583	1971	DEC	31.4
1584	1972	JAN	27.7
1585	1972	FEB	24.1
1586	1972	MAR	22.4
1587	1972	APR	18.7
1588	1972	MAY	15.9
1589	1972	JUN	12.1
1590	1972	JUL	9.3
1591	1972	AUG	5.5
1592	1972	SEP	1.8
1593	1972	SEP	29.0
1594	1972	OCT	26.3
1595	1972	NOV	22.6
1596	1972	DEC	20.0

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1597	1973	JAN	16.3
1598	1973	FEB	12.6
1599	1973	MAR	12.0
1600	1973	APR	8.3
1601	1973	MAY	5.5
1602	1973	JUN	1.7
1603	1973	JUN	28.9
1604	1973	JUL	26.1
1605	1973	AUG	22.4
1606	1973	SEP	18.6
1607	1973	OCT	15.9
1608	1973	NOV	12.2
1609	1973	DEC	9.5
1610	1974	JAN	5.8
1611	1974	FEB	2.2
1612	1974	MAR	1.5
1613	1974	MAR	28.8
1614	1974	APR	25.1
1615	1974	MAY	22.3
1616	1974	JUN	18.5
1617	1974	JUL	15.7
1618	1974	AUG	11.9
1619	1974	SEP	8.2
1620	1974	OCT	5.5
1621	1974	NOV	1.8
1622	1974	NOV	29.1
1623	1974	DEC	26.4
1624	1975	JAN	22.7
1625	1975	FEB	19.1
1626	1975	MAR	18.4
1627	1975	APR	14.7
1628	1975	MAY	11.9
1629	1975	JUN	8.1
1630	1975	JUL	5.3
1631	1975	AUG	1.5
1632	1975	AUG	28.8
1633	1975	SEP	25.0
1634	1975	OCT	22.3
1635	1975	NOV	18.6
1636	1975	DEC	15.9

SYNODIC ROTATION NUMBERS 1970-1993

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1637	1976	JAN	12.3
1638	1976	FEB	8.6
1639	1976	MAR	7.0
1640	1976	APR	3.3
1641	1976	APR	30.5
1642	1976	MAY	27.8
1643	1976	JUN	24.0
1644	1976	JUL	21.1
1645	1976	AUG	17.4
1646	1976	SEP	13.6
1647	1967	OCT	10.9
1648	1976	N0V	7.2
1649	1976	DEC	4.5
1650	1976	DEC	31.8
1651	1977	JAN	28.2
1652	1977	FEB	24.5
1653	1977	MAR	23.8
1654	1977	APR	20.1
1655	1977	MAY	17.4
1656	1977	JUN	13.6
1657	1977	JUL	10.8
1658	1977	AUG	7.0
1659	1977	SEP	3.2
1660	1977	SEP	30.5
1661	1977	OCT	27.8
1662	1977	NOV	24.1
1663	1977	DEC	21.4
1664	1978	JAN	17.7
1665	1978	FEB	14.1
1666	1978	MAR	13.4
1667	1978	APR	9.7
1668	1978	MAY	6.9
1669	1978	JUN	3.2
1670	1978	JUN	30.4
1671	1978	JUL	27.6
1672	1978	AUG	23.8
1673	1978	SEP	20.1
1674	1978	OCT	17.3
1675	1978	NOV	13.6
1676	1978	DEC	10.9
1677	1979	JAN	7.3

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1678	1979	FEB	3.6
1679	1979	MAR	3.0
1680	1979	MAR	30.3
1681	1979	APR	26.5
1682	1979	MAY	23.8
1683	1979	JUN	20.0
1684	1979	JUL	17.2
1685	1979	AUG	13.4
1686	1979	SEP	9.6
1687	1979	OCT	6.9
1688	1979	NOV	3.2
1689	1979	NOV	30.5
1690	1979	DEC	27.8
1691	1980	JAN	24.2
1692	1980	FEB	20.5
1693	1980	MAR	18.8
1694	1980	APR	15.1
1695	1980	MAY	12.4
1696	1980	JUN	8.6
1697	1980	JUL	5.8
1698	1980	AUG	2.0
1699	1980	AUG	29.2
1700	1980	SEP	25.5
1701	1980	OCT	22.8
1702	1980	NOV	19.1
1703	1980	DEC	16.4
1704	1981	JAN	12.7
1705	1981	FEB	9.1
1706	1981	MAR	8.4
1707	1981	APR	4.7
1708	1981	MAY	2.0
1709	1981	MAY	29.2
1710	1981	JUN	25.4
1711	1981	JUL	22.6
1712	1981	AUG	18.8
1713	1981	SEP	15.1
1714	1981	OCT	12.4
1715	1981	N0V	8.6
1716	1981	DEC	6.0
1717	1982	JAN	2.3
1718	1982	JAN	29.6

SYNODIC ROTATION NUMBERS 1970-1993

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1719	1982	FEB	26.0
1720	1982	MAR	25.3
1721	1982	APR	21.6
1722	1982	MAY	18.8
1723	1982	JUN	15.0
1724	1982	JUL	12.2
1725	1982	AUG	8.4
1726	1982	SEP	4.7
1727	1982	OCT	1.9
1728	1982	OCT	29.1
1729	1982	NOV	25.5
1730	1982	DEC	22.8
1731	1983	JAN	19.2
1732	1983	FEB	15.5
1733	1983	MAR	14.8
1734	1983	APR	11.1
1735	1983	MAY	8.4
1736	1983	JUN	4.6
1737	1983	JUL	1.8
1738	1983	JUL	29.0
1739	1983	AUG	25.2
1740	1983	SEP	21.5
1741	1983	OCT	18.8
1742	1983	NOV	15.1
1743	1983	DEC	12.4
1744	1984	JAN	8.7
1745	1984	FEB	5.1
1746	1984	MAR	3.4
1747	1984	MAR	30.7
1748	1984	APR	27.0
1749	1984	MAY	24.2
1750	1984	JUN	20.4
1751	1984	JUL	17.6
1752	1984	AUG	13.8
1753	1984	SEP	10.1
1754	1984	OCT	7.3
1755	1984	NOV	3.7
1756	1984	NOV	31.0
1757	1984	DEC	28.3
1758	1985	JAN	24.6
1759	1985	FEB	21.0

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1760	1985	MAR	20.3
1761	1985	APR	16.6
1762	1985	MAY	13.8
1763	1985	JUN	10.0
1764	1985	JUL	7.2
1765	1985	AUG	3.4
1766	1985	AUG	30.7
1767	1985	SEP	26.9
1768	1985	OCT	24.2
1769	1985	NOV	20.5
1770	1985	DEC	17.8
1771	1986	JAN	14.2
1772	1986	FEB	10.5
1773	1986	MAR	9.9
1774	1986	APR	6.2
1775	1986	MAY	3.4
1776	1986	MAY	30.6
1777	1986	JUN	26.8
1778	1986	JUL	24.0
1779	1986	AUG	20.3
1780	1986	SEP	16.5
1781	1986	OCT	13.8
1782	1986	NOV	10.1
1783	1986	DEC	7.4
1784	1987	JAN	3.7
1785	1987	JAN	31.1
1786	1987	FEB	27.4
1787	1987	MAR	26.7
1788	1987	APR	23.0
1789	1987	MAY	20.2
1790	1987	JUN	16.4
1791	1987	JUL	13.6
1792	1987	AUG	9.9
1793	1987	SEP	6.1
1794	1987	OCT	3.4
1795	1987	OCT	30.6
1796	1987	NOV	27.0
1797	1987	DEC	24.3
1798	1988	JAN	20.6
1799	1988	FEB	17.0
1800	1988	MAR	15.3

SYNODIC ROTATION NUMBERS 1970-1993

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1801	1988	APR	11.6
1802	1988	MAY	8.8
1803	1988	JUN	5.0
1804	1988	JUL	2.2
1805	1988	JUL	29.4
1806	1988	AUG	25.7
1807	1988	SEP	22.0
1808	1988	OCT	19.2
1809	1988	NOV	15.5
1810	1988	DEC	12.8
1811	1989	JAN	9.2
1812	1989	FEB	5.5
1813	1989	MAR	4.8
1814	1989	APR	1.7
1815	1989	APR	28.4
1816	1989	MAY	25.6
1817	1989	JUN	21.9
1818	1989	JUL	19.1
1819	1989	AUG	15.3
1820	1989	SEP	11.5
1821	1989	OCT	8.8
1822	1989	NOV	5.1
1823	1989	DEC	2.4
1824	1989	DEC	29.7
1825	1990	JAN	26.1
1826	1990	FEB	22.4
1827	1990	MAR	21.7
1828	1990	APR	18.0
1829	1990	MAY	15.3
1830	1990	JUN	11.4
1831	1990	JUL	8.6
1832	1990	AUG	4.9
1833	1990	SEP	1.1
1834	1990	SEP	28.4
1835	1990	OCT	25.7
1836	1990	NOV	22.0
1837	1990	DEC	19.3
1838	1991	JAN	15.6
1839	1991	FEB	12.0
1840	1991	MAR	11.3
1841	1991	APR	7.6

Carrington Rotation Number	Date of Commencement		
	Year	Month	Day
1842	1991	MAY	4.8
1843	1991	JUN	1.1
1844	1991	JUN	28.7
1845	1991	JUL	25.5
1846	1991	AUG	21.7
1847	1991	SEP	17.9
1848	1991	OCT	15.2
1849	1991	NOV	11.5
1850	1991	DEC	8.8
1851	1992	JAN	5.2
1852	1992	FEB	1.5
1853	1992	FEB	28.8
1854	1992	MAR	27.2
1855	1992	APR	23.4
1856	1992	MAY	20.7
1857	1992	JUN	16.9
1858	1992	JUL	14.1
1859	1992	AUG	10.3
1860	1992	SEP	6.5
1861	1992	OCT	3.8
1862	1992	OCT	31.1
1863	1992	NOV	27.4
1864	1992	DEC	24.7
1865	1993	JAN	21.1
1866	1993	FEB	17.4
1867	1993	MAR	16.7
1868	1993	APR	13.0
1869	1993	MAY	10.3
1870	1993	JUN	6.5
1871	1993	JUL	3.7
1872	1993	JUL	30.9
1873	1993	AUG	27.1
1874	1993	SEP	23.4
1875	1993	OCT	20.7
1876	1993	NOV	17.0
1877	1993	DEC	14.3
1878	1994	JAN	10.6

List 1. GENERAL CATALOGUE OF ALL POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
01	1558-68	1970	S35	220	50	175	-	S	
02	1558	1970	N53	110	13	170	-	E	
03	1558	1970	S55	020	10	080	-	E	
04	1601-10	1973	N26	341	67	060	+		
05	1602	1973	N46	287	28	006	+	E	Related to Equatorial Coronal Hole 04.
06	1602-10	1973	S47	127	26	094	-		
07	1602-04	1973	N44	085	32	040	+		
08	1604	1973	N52	197	15	025	+	C	
09	1605	1973	N55	115	09	031	+	E	
10	1606-10	1973	N52	199	16	050	+		
11	1607-10	1973	N50	115	19	043	+		
12	1623	1975	N58	216	09	033	+	P	
13	1623-30	1975	S42	100	37	070	-		
14	1624	1975	S45	310	30	040	-	I	
15	1625	1975	N54	337	12	015	+	P	
16	1627	1975	N55	044	09	006	+	P	
17	1633-35	1975	N40	205	38	051	+		
18	1633-34	1975	S53	105	12	021	-		
19	1635	1975	N55	307	10	010	+	S	
20	1635-39	1975	S54	297	11	051	-		
21	1635	1975	N54	237	13	038	+	P	
22	1636-38	1976	S52	109	16	050	-		
23	1636	1976	N56	071	07	018	+	P	
24	1637	1976	S55	197	10	018	-	P	
25	1642	1976	N40	280	40	061	-	C	
26	1647-50	1976	N47	337	25	038	-		
27	1649-50	1976	N47	344	24	029	+		
28	1649-61	1976	N48	106	24	058	+		
29	1649-50	1976	N41	106	37	058	+		
30	1649	1976	S50	072	20	048	-	C	
31	1650-53	1977	S46	197	27	056	-		
32	1651	1977	S53	091	14	118	-	C	
33	1651-52	1977	S52	346	14	092	-		
34	1652-53	1977	N46	342	27	037	+		
35	1652-55	1977	S51	222	17	120	-		
36	1652-53	1977	N52	209	15	049	+		
37	1652-64	1977	S46	002	27	081	-		
38	1653-55	1977	N45	247	86	066	+		
39	1654	1977	S57	119	06	062	-	C	
40	1654-58	1977	N50	346	20	065	+		
41	1655-59	1977	N40	271	23	059	+		

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GENERAL CATALOGUE OF ALL POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
42	1656	1977	N46	249	28	078	+	E	
43	1656-58	1977	S50	224	20	069	-		
44	1656-57	1977	N52	127	14	049	+		
45	1656	1977	S50	124	20	056	-	P	
46	1656	1977	S54	067	12	047	-	C	
47	1659-60	1977	N49	153	21	062	+		
48	1661-62	1977	N50	332	19	041	+		
49	1662	1977	N53	295	14	030	+	C	
50	1662-71	1977	S44	168	30	062	-		
51	1662	1977	S52	196	15	088	-		
52	1662-63	1977	N39	147	41	055	+		
53	1662-63	1977	N51	078	16	034	+		
54	1663	1977	S51	124	18	022	-	C	
55	1663	1977	S52	073	15	016	-	P	
56	1664-65	1978	N46	251	26	042	+		
57	1666-69	1978	N44	068	32	057	+		
58	1666	1978	S57	029	05	057	-	C	
59	1667	1978	S55	186	10	032	-	C	
60	1668-70	1978	S56	275	07	062	-		
61	1668-70	1978	N57	205	06	036	+		
62	1670-73	1978	N53	292	13	038	+		
63	1673-75	1978	N50	191	21	042	+		
64	1673-78	1978	S45	132	28	073	-		
65	1674-75	1978	N56	335	07	032	+		
66	1677	1979	N53	296	14	092	+	P	
67	1677	1979	N57	165	05	020	+	R	
68	1679	1979	N51	169	18	030	+	P	
69	1681-84	1979	S45	324	29	081	-		
70	1685-86	1979	N41	202	36	044	+		
71	1686	1979	S40	256	40	128	-	E	Related to Equatorial Coronal Holes 142-146, and Reappeared off of Polar Coronal Hole 69.
72	1703-04	1980	N56	338	07	028	-		
73	1706-09	1981	N44	278	31	071	-		
74	1707	1981	S47	318	25	082	+	E	Related to Equatorial Coronal Hole 171.
75	1707-08	1981	S45	225	30	093	+		
76	1709-11	1981	N54	112	11	041	-		
77	1710-13	1981	S52	205	14	059	+		
78	1710	1981	S52	186	15	052	+	C	
79	1710-13	1981	S52	091	15	042	+		
80	1714-18	1981	N42	111	36	094	-		
81	1714	1981	S57	130	06	016	+	C	

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GENERAL CATALOGUE OF ALL POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
82	1714-15	1981	N48	028	12	036	-		
83	1715-18	1981	N52	333	15	050	-		
84	1716-21	1981	N46	232	27	059	-		
85	1720	1982	N44	273	32	057	-	P	
86	1722-28	1982	N36	201	48	117	-		
87	1723-45	1982	S43	036	34	107	+		
88	1724-30	1982	N50	069	20	060	-		
89	1727-29	1982	S48	328	24	051	+		
90	1728-34	1982	S51	201	18	064	+		
91	1729	1982	N54	339	11	041	-	C	
92	1731-38	1983	N34	317	51	075	-		
93	1735-37	1983	S57	222	06	023	+		
94	1736-38	1983	S55	296	10	039	+		
95	1740	1983	N55	170	10	021	-	P	
96	1741-49	1983	N42	319	35	091	-		
97	1742-49	1983	S41	212	37	114	+		
98	1744-49	1984	N55	189	08	040	-		
99	1747-48	1984	S50	060	18	033	+		
100	1749-60	1984	S31	213	59	088	+		
101	1750	1984	N55	343	10	057	-	C	
102	1751-59	1984	N30	338	59	125	-		
103	1752	1984	S54	175	12	040	+	R	Related to Polar Coronal Hole 100.
104	1752-53	1984	S54	041	11	047	+		
105	1758	1985	S51	092	18	016	+	P	
106	1759	1985	N53	269	13	018	-	P	
107	1759-63	1985	N42	155	35	039	-		
108	1759	1985	N53	091	14	038	-	P	
109	1761-63	1985	N51	296	17	060	-		
110	1762	1985	S53	196	14	033	+	P	
111	1764-66	1985	N51	086	18	079	-		
112	1765-68	1985	S50	301	19	063	+		
113	1765-68	1985	N49	173	22	069	-		
114	1765	1985	N52	018	12	033	-	P	
115	1766	1985	S55	221	10	042	+	C	
116	1767-68	1985	N53	122	13	044	-		
117	1769-73	1985	S51	229	18	087	+		
118	1769-70	1985	N55	084	10	047	-		
119	1770-72	1985	N54	336	12	057	-		
120	1770-71	1985	N47	154	18	048	-		
121	1772	1986	N55	272	10	115	-	C	
122	1772-75	1986	S53	147	14	073	+		

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GENERAL CATALOGUE OF ALL POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
123	1772	1986	N55	105	10	070	-	C	
124	1774	1986	N55	314	10	108	-	S	
125	1775-76	1986	S54	325	12	038	+		
126	1775	1986	N55	329	10	022	-	P	
127	1775	1986	N55	275	10	050	-	C	
128	1775	1986	S55	062	11	045	+	C	
129	1777-79	1986	N51	281	19	054	-		
130	1778-79	1986	N52	133	15	031	-		
131	1778	1986	N50	000	20	064	-	S	
132	1781	1986	S55	355	10	050	+	C	
133	1781-88	1986	N48	202	22	054	-		
134	1781-85	1986	N54	338	11	030	-		
135	1782	1986	N54	318	12	036	-	P	
136	1782-83	1986	N55	121	10	035	-		
137	1782-89	1986	N50	029	19	034	-		
138	1783-84	1986	S55	327	10	030	+		
139	1783-84	1986	S52	231	15	026	+		
140	1783	1986	S54	093	12	030	+	P	
141	1783-84	1986	N54	017	11	044	-		
142	1784-85	1987	N50	272	20	021	-		
143	1784-87	1987	S53	107	13	058	+		
144	1786-87	1987	N53	133	13	040	-		
145	1786	1987	S55	161	11	062	+	C	
146	1786	1987	N55	055	09	040	-	P	
147	1786	1987	S54	031	12	062	+	S	
148	1787-88	1987	N55	325	10	029	-		
149	1787	1987	S55	286	10	051	+	C	
150	1787-88	1987	N51	278	16	047	-		
151	1787-88	1987	S55	247	10	062	+		
152	1787-91	1987	N53	236	13	037	-		
153	1788-92	1987	N51	165	18	033	-		
154	1788-90	1987	N53	059	14	043	-		
155	1788	1987	S55	031	11	028	+	P	
156	1789	1987	S55	185	10	030	+	C	
157	1789-93	1987	S39	073	43	051	+		
158	1790-96	1987	N44	276	31	056	-		
159	1790	1987	S53	258	13	017	+	P	Related to Equatorial Coronal Hole 302.
160	1790-92	1987	N54	072	12	038	-		
161	1794	1987	S46	121	28	047	+	E	
162	1796-00	1987	S49	265	22	046	+		
163	1796-98	1987	N45	255	30	032	-		

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GENERAL CATALOGUE OF ALL POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
164	1797	1987	N55	132	10	021	-	P	
165	1799-04	1988	S48	319	24	062	+		
166	1801	1988	N53	304	13	038	-	P	
167	1801-06	1988	N48	126	23	044	-		
168	1804-06	1988	S55	162	10	023	+		
169	1804	1988	N50	023	20	052	-	R	
170	1806-08	1988	N41	320	37	030	-		
171	1806	1988	S50	075	20	030	+	R	
172	1808-10	1988	N49	271	23	036	-		
173	1810-14	1988	S44	163	31	064	+		
174	1810	1988	N55	167	10	095	-	C	
175	1812-13	1989	S54	310	11	028	+		
176	1816	1989	N41	298	38	049	-	E	Related to Equatorial Coronal Hole 334.
177	1817-18	1989	N42	191	35	039	-		
178	1819	1989	S54	152	12	015	+	P	
179	1829	1990	S46	359	28	042	+	E	Related to Equatorial Coronal Hole 365.
180	1842-48	1991	N48	236	24	067	+		
181	1847-49	1991	S37	101	46	088	-		
182	1847-49	1991	N53	084	14	049	+		
183	1848-49	1991	S48	342	24	045	-		
184	1848-49	1991	N36	276	47	43	+		

All remarks regarding specific Coronal Holes refer to the General Catalogues.

List 2. GENERAL CATALOGUE OF ALL EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
01	1558	1970	N09	056	19	025	+	E	
02	1601-04	1973	N06	114	21	009	+		
03	1601-08	1973	N03	084	22	027	-	E	
04	1602	1973	N35	294	14	014	+	I	Disconnected from Polar Coronal Hole 05.
05	1602	1973	S12	258	08	013	-	D	Disconnected from Polar Coronal Hole 06.
06	1603-04	1973	S05	122	08	003	+		
07	1603-04	1973	N34	109	07	008	+		
08	1604	1973	S20	123	04	005	+	D	
09	1604	1973	N41	105	03	007	+	D	Related to Polar Coronal Hole 07.
10	1606-10	1973	N12	232	31	029	+		
11	1606	1973	N24	021	06	002	+	E	Disconnected from Polar Coronal Hole 04.
12	1606	1973	S23	018	04	004	-	C	Disconnected from Polar Coronal Hole 04.
13	1606-07	1973	S12	018	29	032	+		
14	1607-08	1973	S04	296	15	012	-		
15	1608	1973	S06	257	10	014	-	E	Connected to Equatorial Coronal Hole 10.
16	1608	1973	S17	216	05	011	+	C	
17	1608-09	1973	S22	139	22	024	-		
18	1608	1973	S06	121	12	015	-	D	Disconnected from Equatorial Coronal Hole 03.
19	1610	1974	N23	110	14	021	+	I	
20	1623	1974	S11	287	19	019	+	E	
21	1623-27	1974	S02	264	22	029	+		
22	1623-26	1974	N17	245	19	019	-		
23	1623-26	1974	S07	231	13	023	+		
24	1623	1974	N01	203	11	009	+	I	
25	1623-24	1974	N18	183	15	018	-		
26	1623	1974	S26	124	18	045	-	E	Connected to Polar Coronal Hole 13.
27	1624	1975	S06	236	15	007	-	D	Disconnected from Equatorial Coronal Hole 22.
28	1624	1975	N13	055	10	017	-	E	
29	1624	1975	S07	036	26	031	+	I	
30	1624	1975	N01	006	03	012	-	E	Uncertain Position.
31	1625	1975	S16	347	10	007	-	E	
32	1625-27	1975	N04	309	32	031	+		
33	1625	1975	S24	300	21	030	-	R	
34	1625	1975	N19	293	05	008	+	D	
35	1625	1975	N15	217	09	009	+	D	
36	1625	1975	N23	204	14	017	+	D	
37	1625	1975	S09	182	10	013	-	I	

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GENERAL CATALOGUE OF ALL EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
38	1625-27	1975	N18	107	11	017	-		
39	1625-26	1975	N24	092	14	010	+		
40	1626	1975	N09	274	08	008	+	C	Connected to Equatorial Coronal Hole 21.
41	1626	1975	N16	229	09	012	+	I	
42	1626	1975	N03	203	10	009	-	I	
43	1626	1975	S43	189	10	015	-	E	
44	1626	1975	S03	129	13	011	+	E	Disconnected from Polar Coronal Hole 13.
45	1626	1975	N34	111	10	032	-	E	
46	1626	1975	S08	079	11	007	+	E	
47	1627	1975	S00	290	05	007	+	D	Disconnected from Polar Coronal Hole 13.
48	1627-28	1975	S24	111	18	020	+		
49	1627	1975	S28	066	09	020	-	E	
50	1627	1975	N15	067	06	007	+	D	
51	1627	1975	S37	034	11	013	+	D	
52	1627	1975	S29	027	10	018	+	E	
53	1629	1975	N21	097	09	030	-	R	
54	1630	1975	S07	092	12	010	+	D	Disconnected from Polar Coronal Hole 13.
55	1631	1975	S02	061	06	006	+	D	
56	1633	1975	N41	309	11	006	+	D	
57	1633-37	1975	N23	302	13	013	+		
58	1633	1975	N06	299	05	005	-	C	
59	1633-35	1975	N00	187	06	006	-		
60	1633	1975	S16	197	05	010	+	D	
61	1633-35	1975	S16	128	23	029	-		
62	1633	1975	N11	105	07	008	-	C	
63	1633-34	1975	N16	071	09	015	+		
64	1634-35	1975	N22	276	10	013	-		
65	1634-39	1975	N12	247	30	039	+		
66	1634	1975	S45	238	08	014	-	E	
67	1634	1975	S13	232	12	011	-	E	
68	1634	1975	N14	202	05	003	+	C	
69	1634	1975	N32	166	05	004	-	C	
70	1634	1975	N34	139	08	015	-	E	
71	1634	1975	S24	069	12	018	-	E	
72	1634	1975	N34	065	10	016	+	E	Uncertain Position.
73	1635	1975	N36	198	13	020	+	E	
74	1635	1975	N43	167	09	026	+	E	
75	1635	1975	S18	151	20	042	-	I	
76	1635	1975	S26	050	14	010	+	I	
77	1636-38	1976	N23	109	12	017	-		
78	1636	1975	S22	075	14	017	-	I	

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Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
79	1637	1976	S08	120	16	015	+	D	
80	1639	1976	N05	271	10	004	+	E	Disconnected from Equatorial Coronal Hole 65.
81	1645-52	1976	N26	301	17	020	+		
82	1650	1977	S29	012	09	017	-	D	
83	1652	1977	N01	220	08	012	+	D	
84	1652	1977	N08	178	13	014	-	D	
85	1653-54	1977	S21	046	12	010	-		
86	1654-56	1977	S22	353	08	015	+		
87	1654	1977	S36	159	08	021	-	E	Disconnected from Polar Coronal Hole 31.
88	1654-55	1977	N29	147	13	027	+		
89	1654-55	1977	N20	058	10	012	-		
90	1654	1977	S01	030	06	011	+	E	
91	1655	1977	N05	189	07	011	-	D	
92	1655	1977	N10	165	17	007	+	E	
93	1655-56	1977	S31	068	12	016	-		
94	1655-56	1977	N36	042	09	015	+		
95	1656-57	1977	S24	034	19	029	-		
96	1657	1977	S06	309	10	007	-	D	
97	1657-60	1977	N12	168	15	019	+		
98	1658-59	1977	S25	173	11	015	+		
99	1659	1977	N03	244	07	018	-	E	
100	1659	1977	S20	230	08	010	-	D	
101	1660	1977	N33	252	15	015	+	E	Related to Polar Coronal Hole 41.
102	1660	1977	N06	130	13	024	-	I	
103	1663	1977	N15	178	31	036	+	I	Disconnected from Polar Coronal Hole 52.
104	1664	1977	S32	200	17	037	-	E	Connected to Polar Coronal Hole 50.
105	1667-72	1978	N31	147	09	018	-		
106	1668	1978	S25	153	14	020	-	I	Disconnected and Connected to Polar Coronal Hole 50.
107	1668	1978	N40	022	11	022	+	E	
108	1669	1978	S40	231	02	010	-	E	
109	1669	1978	S30	051	10	012	+	C	
110	1671-74	1978	S20	090	14	016	-		
111	1672-74	1978	N17	290	20	023	+		
112	1672	1978	N17	100	07	010	-	I	
113	1673	1978	N39	022	18	027	+	E	
114	1674	1978	S20	140	02	010	-	E	
115	1674-76	1978	N35	101	12	026	-		
116	1675	1978	S23	290	07	010	+	I	
117	1675	1978	N33	245	05	012	+	E	

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Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
118	1675	1978	N25	136	09	010	-	E	
119	1676-85	1978	N11	203	27	023	+		
120	1676	1978	N41	075	12	010	-	E	Related to Equatorial Coronal Hole 115.
121	1676	1978	N17	070	05	004	+	D	
122	1677	1979	S12	314	15	014	+	E	
123	1678	1979	S18	357	10	013	-	D	
124	1678	1979	N18	270	08	007	-	D	
125	1678-79	1979	N12	190	21	012	+		
126	1678-79	1979	N03	121	06	009	-		
127	1679-80	1979	S32	205	08	012	+		
128	1679-80	1979	S33	087	20	053	-		
129	1680	1979	S01	191	17	013	-	E	
130	1681	1979	S37	241	22	061	-	E	Connected to Polar Coronal Hole 69.
131	1681	1979	N04	079	09	008	-	D	
132	1682	1979	N25	263	19	020	-	E	
133	1682-83	1979	S31	232	08	020	+		
134	1682	1979	N06	129	10	011	-	D	
135	1682-83	1979	N31	090	11	016	-		
136	1683	1979	N11	085	20	012	-	E	
137	1683	1979	S12	045	05	010	-	D	
138	1683	1979	S20	017	10	030	-	E	
139	1684	1979	N32	047	08	020	-	E	
140	1684	1979	N44	014	08	020	-	E	
141	1685	1979	S26	290	04	010	-	E	Disconnected from Polar Coronal Hole 69, and Connected to Polar Coronal Hole 71.
142	1685	1979	S39	269	26	030	-	I	Disconnected from Polar Coronal Hole 60, and Connected to Polar Coronal Hole 71.
143	1686-87	1979	S18	336	15	027	-		
144	1686-92	1979	N18	293	23	023	-		
145	1686	1979	N22	243	11	014	+	I	
146	1687	1979	S27	296	24	034	-	E	Disconnected from Polar Coronal Hole 71.
147	1688-91	1979	S38	168	16	038	-		
148	1688	1979	S35	053	12	015	+	D	
149	1689	1979	N15	197	10	011	+	D	
150	1690-95	1979	N46	025	14	051	-		
151	1692	1979	S28	303	08	007	-	I	
152	1692-97	1980	N15	245	11	014	+		
153	1692	1980	N15	215	20	018	+	E	
154	1694	1980	N33	297	07	024	+	E	
155	1694-96	1980	S01	056	15	020	-		
156	1695-97	1980	N52	286	11	054	-		

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Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
157	1695	1980	S24	280	14	021	-	I	
158	1695-1700	1980	S40	091	27	080	+		
159	1695-1700	1980	N52	089	23	078	-		
160	1696	1980	N38	176	25	020	-	E	
161	1696	1980	S41	045	12	020	+	E	
162	1698	1980	S11	283	09	008	-	D	
163	1698-1700	1980	N32	204	13	022	+		
164	1698	1980	S13	062	14	010	-	E	
165	1699	1980	N61	325	17	130	-	I	
166	1700-05	1980	S27	164	18	035	-		
167	1701-06	1980	S45	279	30	099	+		
168	1701-02	1980	N05	281	12	012	+		
169	1701	1980	S25	163	13	018	-	I	Connected to Equatorial Coronal Hole 166.
170	1701	1980	S08	006	13	012	-	I	
171	1702-06	1980	S42	028	25	048	+		
172	1702	1980	S59	010	04	021	+	E	
173	1703	1980	N12	152	24	020	-	E	
174	1704	1981	N05	288	10	007	+	D	
175	1704	1981	N22	280	05	010	+	D	
176	1705	1981	S17	203	25	042	-	E	
177	1705	1981	N06	162	29	030	-	E	
178	1707-08	1981	S29	139	16	023	-		
179	1707	1981	S29	088	12	013	-	E	
180	1707	1981	N05	040	10	010	+	C	Connected to Equatorial Coronal Hole 181.
181	1707-21	1981	N03	092	25	025	+		
182	1708	1981	S57	005	14	010	+	E	
183	1709	1981	S20	260	20	020	-	E	Disconnected from Equatorial Coronal Hole 184.
184	1709	1981	S53	244	27	112	-	E	Disconnected from Polar Coronal Hole 75, and Connected to Polar Coronal Hole 77.
185	1709-19	1981	S21	245	11	022	+		
186	1709-13	1981	N33	198	31	063	-		
187	1709	1981	S11	163	18	017	-	E	
188	1709	1981	N21	036	07	011	+	D	Disconnected from Equatorial Coronal Hole 181.
189	1710	1981	N21	341	22	012	+	I	Disconnected from Equatorial Coronal Hole 181.
190	1710	1981	N07	305	11	010	-	E	
191	1710	1981	N03	200	06	006	-	C	
192	1710-11	1981	N36	105	10	019	-		
193	1710	1981	S36	058	10	020	-	E	

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Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
194	1711	1981	N40	320	15	027	-	I	
195	1712	1981	N10	324	06	005	-	D	
196	1712	1981	N02	261	09	007	+	E	
197	1712	1981	N55	127	08	015	-	I	
198	1712	1981	S19	022	07	008	-	I	
199	1713	1981	S18	263	13	012	+	E	Connected to Equatorial Coronal Hole 185.
200	1713	1981	N52	036	25	062	-	I	Connected to Polar Coronal Hole 82.
201	1714	1981	000	327	04	010	-	I	
202	1715	1981	N05	290	10	012	+	I	
203	1716-22	1981	S15	046	32	032	+		
204	1716	1981	N10	013	10	014	+	D	
205	1717	1981	S27	337	11	014	-	E	Connected to Equatorial Coronal Hole 206.
206	1717-18	1981	S33	322	17	021	-		
207	1717	1981	S34	215	05	010	+	E	Connected to Equatorial Coronal Hole 185.
208	1718	1982	N05	289	11	007	-	D	
209	1719	1982	S34	220	09	017	+	I	Disconnected from Equatorial Coronal Hole 185.
210	1719-22	1982	S34	157	33	091	+		
211	1719	1982	S34	017	08	011	+	E	
212	1720	1982	S18	097	07	005	+	E	
213	1721	1982	N05	282	39	018	-	E	Connected to Polar Coronal Hole 86.
214	1721	1982	N42	265	25	021	-	E	Connected to Polar Coronal Hole 86.
215	1722-25	1982	N16	017	23	035	+		
216	1724-27	1982	N08	261	28	035	-		
217	1724	1982	N11	134	10	007	+	D	
218	1724-25	1982	N03	058	11	010	+		
219	1725-30	1982	S09	325	10	020	-		
220	1726-27	1982	S12	228	13	013	-		
221	1726-35	1982	N24	277	17	026	+		
222	1726	1982	S24	148	15	015	+	D	Disconnected and Connected to Polar Coronal Hole 87.
223	1727	1982	S14	300	08	035	-	E	Disconnected from Equatorial Coronal Hole 219.
224	1727	1982	N20	110	08	004	-	D	Disconnected from Polar Coronal Hole 88.
225	1728-32	1982	N09	040	19	030	+		
226	1728	1982	N05	020	10	013	+	I	Connected to Equatorial Coronal Hole 225.
227	1729	1982	N01	252	16	018	+	E	
228	1729	1982	S49	199	08	013	+	E	
229	1729-36	1982	N27	167	19	025	-		
230	1729	1982	S32	109	11	020	+	E	Disconnected from Polar Coronal Hole 87.
231	1730-36	1982	S02	084	35	036	+		

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Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
232	1731-32	1983	N04	331	37	025	-		
233	1732-48	1983	N09	201	31	023	-		
234	1732	1983	S08	203	13	007	-	E	Connected to Equatorial Coronal Hole 233.
235	1732	1983	N22	090	10	005	+	D	Connected to Equatorial Coronal Hole 231.
236	1733-34	1983	N06	150	14	012	-		
237	1734	1983	S24	096	16	024	+	E	Connected and Disconnected from Equatorial Coronal Hole 231.
238	1735	1983	N22	063	11	008	+	D	Disconnected from Equatorial Coronal Hole 231.
239	1735-37	1983	N19	043	17	014	+		
240	1737	1983	S20	181	20	035	-	E	
241	1737	1983	S14	052	10	006	+	D	Connected to Polar Coronal Hole 87.
242	1738-43	1983	S02	271	17	010	+		
243	1738	1983	N45	098	14	027	-	E	
244	1739-43	1983	N17	354	24	050	-		
245	1739	1983	S27	098	07	014	+	E	Disconnected from Polar Coronal Hole 87
246	1739-40	1983	S31	051	31	058	+		
247	1740	1983	S07	183	24	021	-	I	Connected to Equatorial Coronal Hole 233
248	1740	1983	N44	065	12	014	-	D	Connected to Polar Coronal Hole 96.
249	1741	1983	S07	271	09	006	+	E	Connected to Equatorial Coronal Hole 242.
250	1742-45	1983	N11	328	21	014	-		
251	1743	1983	S05	199	11	018	-	E	Disconnected and Connected to Equatorial Coronal Hole 233.
252	1743-44	1983	S27	098	17	028	+		
253	1743	1983	S33	044	06	013	+	E	Disconnected from Polar Coronal Hole 87.
254	1745	1984	N27	331	05	012	-	D	Disconnected from Equatorial Coronal Hole 250 and Connected to Polar Coronal Hole 96.
255	1745-50	1984	N14	065	27	039	-		
256	1747	1984	S29	141	11	008	+	D	
257	1747-49	1984	N00	016	20	013	-		
258	1749	1984	S26	237	12	025	+	E	Disconnected from Polar Coronal Hole 97.
259	1749	1984	S39	219	12	016	+	I	Disconnected from Polar Coronal Hole 97.
260	1749	1984	S06	178	13	014	+	C	
261	1750	1984	S23	356	20	029	-	E	Connected to Polar Coronal Hole 102.
262	1751	1984	S13	124	12	013	-	E	
263	1752	1984	N06	102	21	020	-	E	
264	1752	1984	N28	031	30	042	-	I	Disconnected and Connected to Polar Coronal Hole 102.
265	1752	1984	S12	008	26	051	-	E	Disconnected and Connected to Polar Coronal Hole 102.
266	1753-54	1984	S24	288	15	032	+		

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267	1753	1984	S35	258	19	033	+	E	Disconnected from Polar Coronal Hole 100.
268	1754	1984	S14	150	15	028	-	E	
269	1754	1984	S12	087	20	011	+	I	
270	1756	1984	N05	123	12	015	-	I	
271	1756	1984	N21	033	33	023	-	E	Disconnected and Connected to Polar Coronal Hole 102.
272	1758	1985	N09	055	22	015	-	E	Disconnected from Polar Coronal Hole 102.
273	1758	1985	N21	031	13	030	-	E	Disconnected from Polar Coronal Hole 102.
274	1759	1985	N01	156	09	015	-	E	
275	1760	1985	N30	353	20	034	-	E	Disconnected from Polar Coronal Hole 102.
276	1760-67	1985	S11	256	30	019	+		
277	1760	1985	N20	162	11	013	-	C	Disconnected and Connected to Polar Coronal Hole 107.
278	1762	1985	N20	157	23	024	-	I	Disconnected and Connected to Polar Coronal Hole 107.
279	1762	1985	S04	094	08	009	-	D	
280	1762-66	1985	N10	080	12	015	-		
281	1763	1985	S06	225	08	010	-	D	
282	1763	1985	N06	220	11	015	-	C	
283	1764	1985	S13	347	17	012	+	E	
284	1764	1985	S02	107	07	005	-	D	
285	1765-67	1985	S01	057	12	015	-		
286	1768-69	1985	N06	131	20	010	-		
287	1769-78	1985	N17	023	15	017	-		
288	1772	1986	S03	140	08	010	-	E	
289	1775	1986	S06	245	07	008	+	E	
290	1775	1986	N03	162	09	008	-	D	
291	1778	1986	N35	354	06	008	-	D	
292	1779	1986	N16	097	12	010	+	C	
293	1780	1986	S00	215	05	010	+	D	
294	1782	1986	S10	216	28	007	+	E	
295	1782	1986	N15	214	10	008	+	D	
296	1782	1986	S34	205	05	009	+	D	
297	1782-83	1986	S27	191	11	012	+		
298	1785-86	1987	S32	127	13	014	+		
299	1786	1987	S32	058	10	011	-	D	
300	1787	1987	N09	280	08	010	-	C	
301	1788	1987	S27	186	09	010	+	D	
302	1790	1987	S35	273	14	009	+	E	
303	1791	1987	S08	130	12	012	+	E	Connected to Polar Coronal Hole 157.
304	1791	1987	S32	099	32	059	+	I	Connected to Polar Coronal Hole 157.

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305	1792-94	1987	N35	140	18	022	-		
306	1793	1987	S23	092	28	044	+	I	Disconnected from Polar Coronal Hole 157.
307	1794	1987	N13	229	06	014	-	E	Connected to Polar Coronal Hole 158.
308	1794	1987	S33	061	20	027	+	E	
309	1796-01	1987	S30	113	13	018	+		
310	1797-00	1987	N29	341	14	017	-		
311	1798-99	1988	N33	201	09	012	-		
312	1798-01	1988	S21	062	10	013	+		
313	1799-01	1988	N30	179	23	024	-		
314	1799	1988	S34	021	08	015	+	D	Connected to Polar Coronal Hole 165.
315	1801-06	1988	S30	183	14	030	+		
316	1803-05	1988	S38	126	15	023	+		
317	1803	1988	N27	051	10	015	-	E	
318	1803-05	1988	N27	009	14	018	-		
319	1804	1988	N24	270	18	019	-	I	
320	1805-15	1988	N10	037	25	020	-		
321	1806	1988	N20	330	06	013	-	I	Disconnected and Connected to Polar Coronal Hole 170. Position Uncertain.
322	1806-09	1988	S34	298	15	020	+		
323	1806	1988	S48	250	13	014	+	I	
324	1806-08	1988	N27	243	08	011	+	I	
325	1810-11	1988	S17	200	27	027	+		
326	1812	1989	N26	239	12	014	+	I	
327	1812	1989	N36	178	12	012	+	E	
328	1813-17	1989	N28	291	16	020	-		
329	1813	1989	N10	150	11	012	-	I	
330	1814-15	1989	N21	357	12	005	-		
331	1814	1989	S26	340	11	010	+	I	
332	1814-26	1989	S32	174	21	030	+		
333	1814-17	1989	N40	136	18	049	+		
334	1815	1989	N30	336	22	027	-	I	
335	1815	1989	N24	291	05	007	-	I	Disconnected from Equatorial Coronal Hole 328.
336	1815	1989	N35	270	21	032	-	E	Disconnected from Equatorial Coronal Hole 328.
337	1816	1989	S12	207	11	007	+	D	
338	1816	1989	N36	173	13	017	+	E	Disconnected from Equatorial Coronal Hole 333.
339	1816	1989	S44	149	18	021	-	I	
340	1816-19	1989	N37	056	23	038	+		
341	1817-18	1989	N30	320	14	029	-		

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342	1817	1989	N26	314	08	011	-	C	Disconnected from Equatorial Coronal Hole 341.
343	1818-20	1989	S38	260	17	015	-		
344	1818-30	1989	N31	085	19	044	-		
345	1818	1989	S35	123	08	028	-	E	
346	1818-31	1989	N41	237	24	053	+		
347	1819	1989	S45	287	07	016	-	E	Disconnected from Equatorial Coronal Hole 343.
348	1821-24	1989	S29	278	09	015	+		
349	1821-22	1989	N45	257	17	029	+		
350	1821-23	1989	S36	081	14	030	+		
351	1821-22	1989	N09	092	21	019	-		
352	1821-23	1989	N03	053	18	018	-		
353	1822	1989	N28	254	08	009	+	I	Connected to Equatorial Coronal Hole 346.
354	1822-24	1989	N24	162	14	020	-		
355	1823	1989	N09	343	32	023	-	E	
356	1823	1989	S39	096	06	007	+	E	
357	1823-24	1989	S40	028	14	024	+		
358	1824-28	1989	N31	329	12	023	-		
359	1824	1989	N20	015	04	010	-	E	Connected to Equatorial Coronal Hole 358.
360	1824	1989	N14	001	12	007	-	E	Connected to Equatorial Coronal Hole 358.
361	1825-28	1990	S30	237	18	023	+		
362	1826-27	1990	N15	326	14	013	-		
363	1826	1990	S35	101	08	008	+	E	Disconnected from Equatorial Coronal Hole 332.
364	1826	1990	S45	082	12	025	+	I	Disconnected from Equatorial Coronal Hole 332.
365	1827-33	1990	S42	348	29	042	+		
366	1828-30	1990	S17	289	19	021	-		
367	1828	1990	N15	241	10	018	+	E	
368	1828-37	1990	N05	061	28	027	-		
369	1830-35	1990	N20	247	35	042	+		
370	1830	1990	S21	226	12	008	-	E	Uncertain Position.
371	1830	1990	N46	096	17	052	+	E	Uncertain Position.
372	1830	1990	S12	013	16	020	+	E	Uncertain Position.
373	1831-32	1990	N52	249	25	052	+		
374	1831-32	1990	N03	155	10	007	-		
375	1832	1990	S22	321	05	013	+	I	Uncertain Position.
376	1832-33	1990	S17	016	11	014	-		
377	1833-37	1990	N31	308	13	023	-		

All remarks regarding specific Coronal Holes refer to the General Catalogues.

GENERAL CATALOGUE OF ALL EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
378	1833	1990	S17	266	05	004	+	D	Disconnected from Equatorial Coronal Hole 369. Uncertain Position.
379	1833	1990	N31	025	18	026	-	E	Disconnected from Equatorial Coronal Hole 368. Uncertain Position.
380	1835-36	1990	S04	218	21	010	+		
381	1835-38	1990	N53	108	48	057	+		
382	1835-36	1990	S06	117	19	012	+		
383	1836-38	1990	S21	310	21	015	-		
384	1836-37	1990	S43	301	08	015	-		
385	1836	1990	N21	177	06	021	-	E	Uncertain Position.
386	1836	1990	N04	176	08	008	-	E	Uncertain Position.
387	1836	1990	S24	121	04	007	+	E	Uncertain Position.
388	1837	1990	S23	073	06	006	-	E	Uncertain Position.
389	1837-39	1990	N24	049	29	025	-		
390	1838-40	1991	S12	269	19	019	+		
391	1838-49	1991	S02	248	23	020	+		
392	1838	1991	N16	134	10	008	+	E	Disconnected from Equatorial Coronal Hole 381. Uncertain Position.
393	1839-40	1991	N17	191	13	014	-		
394	1839-40	1991	N42	090	11	034	+		
395	1839-40	1991	S11	084	26	016	-		
396	1839-42	1991	N28	076	14	017	-		
397	1839-40	1991	N15	057	09	012	-		
398	1840-44	1991	S46	241	10	037	+		
399	1840-42	1991	N08	080	07	016	-		
400	1842	1991	S59	287	05	010	-	E	Uncertain Position.
401	1842	1991	N30	235	10	012	+	I	Uncertain Position.
402	1842-46	1991	S21	134	36	042	-		
403	1842	1991	S25	122	40	045	-	I	Connected to Equatorial Coronal Hole 402. Uncertain Position.
404	1842-43	1991	N03	011	18	014	-		
405	1843-44	1991	S14	223	11	012	+		
406	1843	1991	S10	180	20	012	-	E	Uncertain Position.
407	1843-44	1991	N13	108	21	012	-		
408	1844	1991	N23	329	10	018	-	E	Uncertain Position.
409	1844-46	1991	N09	308	19	008	-		
410	1844	1991	N24	290	08	010	-	I	Uncertain Position.
411	1844-46	1991	S42	007	15	009	-		
412	1847-49	1991	S12	219	28	020	+		
413	1847	1991	S08	134	30	020	-	I	Uncertain Position.
414	1847-49	1991	N11	024	11	009	-		

All remarks regarding specific Coronal Holes refer to the General Catalogues.

GENERAL CATALOGUE OF ALL EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Year	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Polarity	Shape	Remarks
415	1848	1991	S35	331	20	033	-	I	Uncertain Position.
416	1848	1991	N27	318	15	027	+	E	Uncertain Position.
417	1848-49	1991	S12	148	21	011	-		
418	1849	1991	S48	272	10	015	-	E	Uncertain Position.
419	1849	1991	S11	262	03	004	-	E	Uncertain Position.
420	1849	1991	S00	173	30	020	-	E	Uncertain Position.

All remarks regarding specific Coronal Holes refer to the General Catalogues.

List 3. PARTICULAR CATALOGUE OF POLAR CORONAL HOLES
(Those Visible for More than One Carrington Rotation)

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
01	1558	S35	220	050	173	S	
01	1559						No Data.
01	1560						No Data.
01	1561						No Data.
01	1562						No Data.
01	1563						No Data.
01	1564						No Data.
01	1565						No Data.
01	1566						No Data.
01	1567						No Data.
01	1568	S25	300	070	~80	C	
04	1601	N09	008	103	054	E	Skylab Coronal Hole 1.
04	1602	N13	002	093	043	B	
04	1603	N11	003	098	065	B	
04	1604	N15	000	089	057	B	
04	1605	N17	001	085	057	B	
04	1606						No Data.
04	1607	N44	330	032	080	I	The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude. Related to Equatorial Coronal Holes 11,12, and 13.
04	1608	N41	310	037	100	I	
04	1609	N39	311	041	042	E	Skylab Coronal Hole 7.
04	1610	N48	300	023	040	E	
06	1602	S44	202	035	148	S	Skylab Coronal Hole 5, Related to Equatorial Coronal Hole 05.
06	1603						No Data.
06	1604	S43	177	033	126	R	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
06	1605	S47	151	025	018	C	
06	1606	S51	087	018	110	I	
06	1607	S44	091	032	103	E	
06	1608	S49	077	021	094	C	Related to Equatorial Coronal Hole 17.
06	1609	S54	097	012	112	R	
06	1610	S35	132	050	040	E	Connected to Equatorial Coronal Hole 17.
07	1602	N41	078	038	044	E	Skylab Coronal Hole 3.
07	1603	N40	090	040	040	E	
07	1604	N51	086	018	036	E	Related to Equatorial Coronal Hole 09.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
10	1606	N51	193	018	049	E	
10	1607	N55	206	010	012	E	
10	1608	N55	186	009	051	E	
10	1609	N49	205	022	050	P	
10	1610	N50	206	020	088	C	
11	1607	N54	129	012	011	E	
11	1608	N49	132	022	040	C	
11	1609	N49	115	022	050	C	
11	1610	N49	085	021	070	C	
13	1623	S56	125	008	030	C	
13	1624	S33	102	053	082	I	Related to Equatorial Coronal Hole 26.
13	1625	S28	121	063	051	I	
13	1626	S37	113	046	067	I	Related to Equatorial Coronal Holes 44 and 46.
13	1627	S50	100	020	080	P	Related to Equatorial Coronal Holes 48 and 49.
13	1628	S55	075	010	040	C	
13	1629	S37	081	046	108	I	
13	1630	S37	081	046	102	I	Related to Equatorial Coronal Hole 54.
17	1633	N24	235	072	051	R	
17	1634	N45	191	029	043	I	Related to Equatorial Coronal Hole 65.
17	1635	N53	188	013	021	D	
18	1633	S55	129	010	021	P	
18	1634	S52	081	015	022	C	
20	1635	S56	302	007	044	R	
20	1636	S50	315	020	045	C	
20	1637	S58	286	004	041	C	
20	1638	S55	283	010	055	C	
20	1639	S57	385	006	065	R	
22	1636	S50	099	020	048	C	
22	1637	S55	121	009	058	R	
22	1638	S50	107	020	045	P	
26	1647	N47	322	025	061	P	
26	1648						No Data.
26	1649	N43	279	034	025	P	
26	1650	N51	259	017	048	C	
27	1649	N43	347	033	025	P	
27	1650	N52	345	016	010	C	
28	1649	N45	197	029	030	C	Related to Equatorial Coronal Hole 88.
28	1650	N42	152	036	064	E	
28	1651	N43	172	034	030	E	
28	1652	N42	136	035	074	R	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
28	1653	N50	123	020	055	P	
28	1654	N50	147	020	042	P	
28	1655	N55	126	010	042	S	
28	1656	N46	102	028	039	S	
28	1657	N48	051	024	058	E	
28	1658	N47	057	025	090	C	
28	1659	N50	011	019	087	C	
28	1660						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
28	1661	N55	355	010	090	S	
29	1649	N39	136	041	032	E	
29	1650	N43	077	033	085	E	
31	1650	S53	228	013	087	C	
31	1651	S49	210	022	080	I	
31	1652	S42	176	035	028	E	
31	1653	S40	173	039	030	E	Related to Equatorial Coronal Hole 87.
33	1651	S53	331	013	122	R	The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude, Because of its Sinuous Form.
33	1652	S52	001	015	062	C	
34	1652	N48	349	024	029	E	
34	1653	N45	335	030	045	E	
35	1652	S52	214	015	036	P	
35	1653	S51	246	017	108	C	
35	1654	S51	215	017	130	S	
35	1655	S50	213	020	207	R	
36	1652	N53	220	012	080	C	
36	1653	N51	199	018	018	C	
37	1652	S51	128	017	064	C	
37	1653	S51	090	018	116	C	
37	1654	S46	056	028	062	P	
37	1655	S50	025	020	126	S	Related to Equatorial Coronal Hole 93.
37	1656						The Hole Drifted to the next Carrington Rotation, Based on its Longitude and Latitude.
37	1657	S50	339	020	114	C	Related to Equatorial Coronal Hole 95.
37	1658	S55	345	010	029	I	
37	1658	S41	008	038	093	P	The Hole Drifted to One Carrington Rotation Before. It is Labeled Based on its Longitude.
37	1659						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
37	1660	S37	331	045	133	P	
37	1661	S37	350	045	089	P	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
37	1662	S37	334	045	069	I	
37	1663	S52	267	015	026	C	
37	1664	S46	270	028	056	P	
38	1653	N43	277	033	054	C	Related to Equatorial Coronal Hole 81.
38	1654	N46	249	028	075	P	
38	1655	N47	215	025	070	P	
40	1654	N52	044	016	078	P	
40	1655						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
40	1656	N50	337	019	055	C	
40	1657	N47	335	025	070	C	
40	1658	N50	310	019	056	P	
41	1655	N53	339	013	037	R	
41	1656	N55	298	009	057	C	
41	1657	N43	255	034	075	I	
41	1658	N44	223	032	074	E	
41	1659	N47	241	025	051	C	Related to Equatorial Coronal Hole 101.
43	1656	S49	237	022	090	P	
43	1657	S49	218	022	053	P	
43	1658	S52	217	015	065	P	
44	1656	N54	147	011	045	C	
44	1657	N51	108	018	053	C	
47	1659	N50	166	020	057	P	
47	1660	N48	140	023	067	E	
48	1661	N51	332	017	035	S	
48	1662	N49	333	021	047	C	
50	1662	S43	281	033	042	P	
50	1663	S51	226	018	047	C	
50	1664	S40	222	039	040	D	
50	1665	S40	204	039	069	I	Connected to Equatorial Coronal Hole 104.
50	1666	S40	169	040	102	I	
50	1667	S42	129	035	059	E	
50	1668	S54	139	011	058	C	Related to Equatorial Coronal Hole 106.
50	1669	S40	111	040	062	E	
50	1670	S40	098	040	066	E	
50	1671	S55	098	010	077	C	Related to Equatorial Coronal Hole 110.
52	1662	N31	165	058	070	B	
52	1663	N48	130	024	040	E	Related to Equatorial Coronal Hole 103.
53	1662	N52	094	015	048	P	
53	1663	N51	062	018	020	P	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
56	1664	N41	255	038	050	E	
56	1665	N52	247	015	035	P	
57	1666	N54	101	012	052	C	
57	1667	N36	077	048	050	E	
57	1668	N42	059	035	059	E	
57	1669	N43	036	034	068	E	
60	1668	S55	314	010	084	C	
60	1669	S56	276	007	063	C	
60	1670	S57	236	005	038	C	
61	1668	N57	237	005	045	C	
61	1669	N57	185	006	034	C	
61	1670	N56	192	007	029	P	
62	1670	N53	337	014	045	P	
62	1671	N53	290	014	036	P	
62	1672	N53	278	014	053	C	
62	1673	N55	263	010	017	P	
63	1673	N50	233	020	033	P	
63	1674	N50	191	020	038	P	
63	1675	N49	150	022	056	P	
64	1673	S56	205	007	030	C	
64	1674	S43	174	033	056	P	
64	1675	S56	137	007	055	C	
64	1676	S40	113	039	107	P	
64	1677	S39	100	042	058	E	
64	1678	S39	061	041	133	E	Related to Equatorial Coronal Hole 128.
65	1674	N57	352	005	024	C	
65	1675	N55	318	010	040	P	
69	1681	S55	340	009	040	R	Related to Equatorial Coronal Hole 130.
69	1682	S39	343	041	128	R	
69	1683	S45	320	030	084	R	
69	1684	S41	295	038	071	R	Related to Equatorial Coronal Hole 142.
70	1685	N53	211	014	022	P	
70	1686	N30	193	059	067	B	Related to Equatorial Coronal Hole 119.
72	1703	N57	343	005	023	C	
72	1704	N55	334	010	033	C	
73	1706	N53	305	013	032	C	Related to Polar Coronal Hole 72.
73	1707	N38	301	043	042	I	
73	1708	N40	275	039	098	E	
73	1709	N45	231	029	114	I	Related to Equatorial Coronal Hole 186.
75	1707	S45	228	030	080	P	Related to Equatorial Coronal Hole 167.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
75	1708	S45	223	030	106	P	Related to Equatorial Coronal Hole 184.
76	1709	N55	119	010	022	P	
76	1710	N53	103	014	050	P	Related to Equatorial Coronal Hole 192.
76	1711	N55	115	010	050	I	
77	1710	S52	226	015	028	P	
77	1711	S51	195	018	050	P	
77	1712	S52	216	015	072	P	
77	1713	S55	184	010	085	C	
79	1710	S56	097	008	030	C	
79	1711	S56	109	008	042	P	
79	1712	S55	092	010	036	C	
79	1713	S42	066	035	061	E	
80	1714	N38	154	043	130	E	Related to Equatorial Coronal Hole 186.
80	1715	N35	157	050	115	E	
80	1716	N40	117	039	042	I	
80	1717	N49	079	022	075	E	
80	1718	N47	050	026	110	E	
82	1714	N42	034	015	048	P	
82	1715	N55	022	009	025	P	
83	1715	N55	328	010	053	P	
83	1716	N55	351	010	022	P	
83	1717	N50	347	020	075	C	
83	1718	N49	306	022	052	P	
84	1716	N53	284	013	034	P	
84	1717	N41	270	038	064	E	
84	1718	N37	254	045	034	E	
84	1719	N43	217	034	086	E	
84	1720	N46	194	027	101	R	
84	1721	N57	174	006	034	I	Related to Equatorial Coronal Hole 214.
86	1722	N22	237	075	125	B	Related to Polar Coronal Hole 84 and Equatorial Coronal Hole 214.
86	1723	N24	257	071	098	I	
86	1724	N40	174	040	178	I	Related to Equatorial Coronal Hole 216.
86	1725	N40	197	039	116	I	
86	1726	N41	192	038	104	E	
86	1727	N39	183	042	126	E	
86	1728	N45	170	030	072	E	Related to Equatorial Coronal Hole 229.
87	1723	S36	091	047	137	I	Related to Equatorial Coronal Holes 203 and 210.
87	1724	S36	092	048	169	I	
87	1725	S37	081	045	164	I	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
87	1726	S36	069	047	138	I	Related to Equatorial Coronal Hole 222.
87	1727	S40	071	040	163	E	
87	1728	S37	053	045	147	E	
87	1729	S45	041	030	098	I	Related to Equatorial Coronal Hole 230.
87	1730	S43	044	034	108	I	
87	1731	S43	052	034	099	I	
87	1732	S44	042	031	085	I	
87	1733	S41	357	038	075	I	Only the Longitude drifted into the Next Carrington Rotation.
87	1734	S45	046	030	108	P	
87	1735	S55	058	010	085	C	
87	1736	S40	070	040	092	I	
87	1737	S42	066	035	073	E	
87	1738	S30	030	060	095	I	
87	1739	S52	012	015	061	C	Related to Equatorial Coronal Hole 246.
87	1740	S52	323	015	054	C	
87	1741	S40	028	040	117	E	Disconnected from Equatorial Coronal Hole 246.
87	1742					E	The Hole Drifted to the Next Carrington Rotation, Based in its Longitude and Latitude.
87	1743	S39	341	042	163	C	Related to Equatorial Coronal Hole 253.
87	1744	S52	327	015	100	C	
87	1745	S53	295	014	029	C	
88	1724	N56	040	007	064	E	
88	1725	N58	078	003	030	P	
88	1726	N42	110	036	060	P	
88	1727	N48	081	024	078	P	Related to Equatorial Coronal Hole 224.
88	1728	N43	068	033	081	E	
88	1729	N49	058	022	043	P	
88	1730	N52	045	015	063	C	
89	1727	S45	333	030	054	E	
89	1728	S48	330	023	040	P	
89	1729	S50	320	020	060	D	
90	1728	S53	272	014	076	C	
90	1729	S52	235	016	050	P	
90	1730	S45	209	030	074	P	
90	1731	S51	202	017	075	S	
90	1732	S52	179	016	098	I	
90	1733	S50	164	020	032	P	
90	1734	S52	148	015	040	P	
92	1731	N58	310	003	035	C	
92	1732	N52	308	016	027	P	
92	1733	N24	329	072	066	B	Related to Equatorial Coronal Hole 232.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
92	1734	N27	325	065	076	B	
92	1735	N17	325	086	098	B	
92	1736	N35	318	049	079	E	
92	1737	N32	315	055	100	E	
92	1738	N28	308	063	120	E	Related to Equatorial Coronal Hole 244.
93	1735	S56	211	008	022	P	
93	1736	S58	230	003	031	S	
93	1737	S56	224	008	015	C	
94	1736	S57	299	005	036	R	
94	1737	S52	300	015	061	S	
94	1738	S55	289	010	021	P	
96	1741	N51	017	018	061	E	
96	1742						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
96	1743	N46	343	027	127	I	
96	1744	N46	351	027	094	E	
96	1745	N34	325	052	170	E	
96	1746	N25	345	070	091	R	
96	1747	N26	302	068	120	E	
96	1748	N52	255	015	031	S	Related to Equatorial Coronal Hole 257.
96	1749	N56	253	007	037	C	
97	1742	S42	242	035	030	E	
97	1743	S40	242	040	064	E	
97	1744	S40	242	040	076	E	
97	1745	S40	230	040	073	S	
97	1746	S40	222	040	145	E	
97	1747	S41	167	038	163	E	
97	1748	S41	187	038	165	E	
97	1749	S47	162	025	195	E	Related to Equatorial Coronal Holes 258 and 259.
97	1750						No Data.
98	1744	N56	169	008	055	P	
98	1745	N56	176	008	033	P	
98	1746	N58	171	003	022	P	
98	1747	N54	201	012	052	P	The Hole Drifted to One Carrington Rotation Before. It is Labeled Based on its Longitude.
98	1748	N53	218	013	044	P	
98	1749	N56	199	007	035	C	
98	1750						No Data.
99	1747	S45	066	030	039	P	
99	1748	S56	055	007	027	C	
100	1749	S41	279	038	038	E	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
100	1750						No Data.
100	1751	S26	243	067	120	R	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
100	1752	S18	238	083	134	R	
100	1753	S24	200	072	077	P	Related to Equatorial Coronal Holes 266 and 267.
100	1754	S29	175	062	107	E	
100	1755	S28	186	064	083	E	
100	1756	S25	193	070	113	E	
100	1757	S29	197	062	090	E	
100	1758	S25	220	070	080	E	
100	1759	S37	202	045	058	E	
100	1760	S54	214	012	072	C	Related to Equatorial Coronal Hole 276.
102	1751	N56	039	088	117	R	Related to Equatorial Coronal Hole 255.
102	1752	N54	002	012	057	C	Related to Equatorial Coronal Holes 264 and 265.
102	1753						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude. Related to Equatorial Coronal Holes 264 and 265.
102	1754	N17	343	085	126	I	
102	1755	N15	323	090	157	I	
102	1756	N31	321	058	172	I	Related to Equatorial Coronal Hole 271.
102	1757	N41	299	038	134	E	Disconnected from Equatorial Coronal Hole 271.
102	1758	N29	328	062	176	E	Related to Equatorial Coronal Holes 272 and 273.
102	1759	N40	331	040	062	E	Related to Equatorial Coronal Hole 275.
104	1752	S53	042	014	049	S	
104	1753	S56	041	008	046	C	
107	1759	N43	155	034	024	E	
107	1760	N46	156	028	019	R	
107	1761	N32	165	056	074	E	Related to Equatorial Coronal Hole 277.
107	1762	N48	169	023	026	P	Related to Equatorial Coronal Hole 278.
107	1763	N42	132	035	053	E	
109	1761	N47	327	025	115	P	
109	1762	N49	285	021	044	P	
109	1763	N57	275	006	020	P	
111	1764	N54	087	011	074	C	
111	1765	N49	098	021	044	I	
111	1766	N49	074	022	118	P	
112	1765	S55	313	009	034	C	
112	1766	S51	310	017	056	P	
112	1767	S44	299	031	078	R	
112	1768	S50	283	020	083	C	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
113	1765	N52	163	015	053	P	
113	1766	N49	171	021	077	I	
113	1767	N43	179	034	095	E	
113	1768	N51	180	017	050	C	
116	1767	N49	109	022	048	P	
116	1768	N57	135	005	040	C	
117	1769	S54	260	012	151	I	Related to Polar Coronal Hole 112.
117	1770	S49	234	022	076	S	
117	1771	S50	212	020	065	S	
117	1772	S50	215	020	070	S	
117	1773	S52	223	015	074	C	
118	1769	N55	073	010	047	P	
118	1770	N55	096	010	048	C	
119	1770	N55	320	010	110	P	
119	1771	N51	340	017	044	P	
119	1772	N55	348	009	016	S	
120	1770	N53	155	014	050	S	
120	1771	N42	153	023	047	P	
122	1772	S50	124	020	108	E	
122	1773	S55	138	011	096	C	
122	1774	S55	156	009	047	S	
122	1775	S51	171	017	043	P	
122	1776	S55	222	010	016	P	
125	1775	S55	332	010	045	P	
125	1776	S53	319	014	032	P	
129	1777	N50	312	020	054	S	
129	1778	N52	279	015	039	E	
129	1779	N50	251	021	070	S	
130	1778	N55	138	011	044	S	
130	1779	N50	128	019	018	P	
133	1781	N55	290	011	130	S	
133	1782	N55	215	010	049	S	
133	1783	N44	226	031	029	P	
133	1784	N44	217	031	058	I	
133	1785	N47	194	025	039	P	
133	1786	N47	185	025	035	E	
133	1787	N43	159	026	038	E	
133	1788	N50	132	020	051	E	
134	1781	N55	008	010	043	C	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
134	1782						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
134	1783	N50	342	020	035	P	
134	1784	N55	333	009	013	P	
134	1785	N57	309	006	028	R	
136	1782	N55	129	010	050	I	
136	1783	N56	113	010	020	P	
137	1782	N48	071	023	031	I	
137	1783	N47	083	025	044	P	
137	1784	N50	039	020	022	P	
137	1785	N57	014	005	018	P	
137	1786	N49	005	022	030	P	
137	1787	N49	356	022	030	S	Only the Longitude Drifted to the Next Carrington Rotation.
137	1788	N48	013	023	062	P	
137	1789	N55	015	010	039	P	
138	1783	S55	322	010	036	P	
138	1784	S55	332	010	025	P	
139	1783	S50	212	020	019	P	
139	1784	S55	251	010	033	P	
141	1783	N54	027	012	046	P	
141	1784	N55	007	010	042	P	
142	1784	N50	295	021	022	I	
142	1785	N50	249	019	021	P	
143	1784	S50	138	020	090	D	
143	1785	S55	107	010	065	P	Related to Equatorial Coronal Hole 298.
143	1786	S53	102	014	056	S	
143	1787	S55	080	009	021	P	
144	1786	N53	151	014	033	P	
144	1787	N54	116	012	048	C	
148	1787	N55	336	011	028	S	
148	1788	N56	315	009	030	C	
150	1787	N51	275	018	057	I	
150	1788	N52	282	015	037	C	
151	1787	S55	238	010	043	C	
151	1788	S55	256	010	081	P	
152	1787	N55	232	010	030	P	
152	1788	N53	237	013	054	P	
152	1789	N50	251	020	057	E	
152	1790	N54	240	012	025	E	
152	1791	N55	220	009	020	E	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
153	1788	N55	184	010	039	P	
153	1789	N55	193	010	033	S	
153	1790	N45	160	030	021	P	
153	1791	N45	143	030	043	E	
153	1792	N55	144	010	027	P	Related to Equatorial Coronal Hole 305.
154	1788	N55	088	010	038	P	
154	1789	N54	054	012	038	P	
154	1790	N50	036	020	052	I	
157	1789	S35	106	050	029	E	
157	1790	S31	102	057	048	E	
157	1791	S45	053	031	026	E	Related to Equatorial Coronal Holes 304 and 303.
157	1792	S39	078	042	089	E	Related to Equatorial Coronal Holes 304 and 303.
157	1793	S43	024	033	065	E	Related to Equatorial Coronal Hole 306.
158	1790	N47	346	025	022	P	
158	1791	N45	329	030	035	E	
158	1792	N47	303	026	057	E	
158	1793	N44	286	032	082	E	
158	1794	N45	253	030	063	S	
158	1795	N42	219	036	076	I	
158	1796	N40	199	049	058	E	
160	1790	N51	101	018	058	I	
160	1791	N55	081	010	030	C	
160	1792	N55	033	009	026	P	
162	1796	S50	337	020	059	S	
162	1797	S50	296	020	032	S	
162	1798	S54	287	012	074	E	
162	1799	S46	215	028	025	P	
162	1800	S45	192	029	038	E	Related to Equatorial Coronal Hole 315.
163	1796	N42	284	036	017	E	
163	1797	N46	261	028	040	E	
163	1798	N47	220	025	040	E	Related to Equatorial Coronal Hole 313.
165	1799	S55	007	010	019	C	
165	1800						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
165	1801	S46	331	028	072	E	
165	1802	S46	321	028	073	S	
165	1803	S45	293	030	086	E	
165	1804	S49	281	022	058	E	
167	1801	N55	182	010	044	S	
167	1802	N44	152	032	056	E	Related to Equatorial Coronal Hole 313.
167	1803	N50	142	020	052	I	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF POLAR CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
167	1804	N57	110	005	026	P	
167	1805	N45	109	030	058	E	
167	1806	N40	064	040	028	R	
168	1804	S56	176	007	023	P	
168	1805	S55	168	010	013	P	
168	1806	S53	142	014	032	P	
170	1806	N43	335	033	030	S	
170	1807						No Data.
170	1808	N39	306	042	031	E	
172	1808	N49	255	022	040	E	
172	1809	N40	288	040	053	E	
172	1810	N57	271	006	016	C	
173	1810	S43	240	033	090	E	
173	1811	S50	193	020	045	I	
173	1812	S35	167	049	066	E	Related to Equatorial Coronal Hole 325.
173	1813	S42	135	036	081	E	
173	1814	S51	079	017	039	E	
175	1812	S53	333	013	037	C	
175	1813	S55	288	010	020	C	
177	1817	N45	212	030	037	E	Related to Polar Coronal Hole 176.
177	1818	N40	171	040	042	I	
180	1842	N49	255	022	110	I	
180	1843	N46	287	028	062	I	
180	1844	N44	264	032	065	C	
180	1845						No Data.
180	1846	N46	225	027	056	C	
180	1847	N49	200	022	056	C	
180	1848	N53	186	014	052	C	
181	1847	S37	100	045	060	E	Related to Equatorial Coronal Hole 402.
181	1848	S37	095	045	090	I	
181	1849	S36	107	047	115	I	
182	1847	N56	097	007	075	C	
182	1848	N51	086	017	040	C	
182	1849	N51	068	017	033	P	
183	1848	S51	341	018	042	I	
183	1849	S45	344	030	049	I	Related to Equatorial Coronal Hole 418.
184	1848	N43	281	033	034	P	
184	1849	N29	271	062	053	I	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

List 4. PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES
(Those Visible for More than One Carrington Rotation)

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
02	1601	N03	110	021	011	E	Skylab Coronal Hole 3.
02	1602	S02	114	041	018	I	
02	1603	N11	114	014	004	I	Related to Equatorial Coronal Hole 06.
02	1604	N13	119	007	003	D	
03	1601	N03	059	011	006	D	
03	1602	N10	072	021	023	E	
03	1603	N04	073	012	025	I	
03	1604	S03	078	010	014	E	
03	1605	N01	085	023	030	I	
03	1606	N05	092	038	040	I	
03	1607	N01	099	039	058	I	
03	1608	N01	087	022	018	D	Related to Equatorial Coronal Holes 18 and 17.
06	1603	S06	120	008	003	E	Disconnected from Equatorial Coronal Hole 02.
06	1604	S04	124	008	003	D	
07	1603	N35	116	006	008	D	
07	1604	N34	103	008	009	I	
10	1606	N15	228	026	020	I	
10	1607	N05	230	040	020	I	
10	1608	N10	237	035	030	I	
10	1609	N12	240	036	043	I	Related to Equatorial Coronal Hole 15.
10	1610	N20	227	020	030	E	
13	1606	S06	015	037	030	I	Disconnected from Polar Coronal Hole 04.
13	1607	S17	022	022	034	I	
14	1607	S04	293	004	015	E	
14	1608	S05	298	026	008	E	
17	1608	S24	144	018	021	E	Disconnected from Equatorial Coronal Hole 03.
17	1609	S20	133	027	026	I	Connected to Polar Coronal Hole 06.
21	1623	N04	256	016	044	E	
21	1624	S08	258	028	029	I	
21	1625	S04	264	015	017	I	
21	1626	S07	272	023	029	I	Related to Equatorial Coronal Holes 22 and 40.
21	1627	N04	271	027	027	I	
22	1623	N17	230	044	028	I	
22	1624	N16	236	012	017	I	Related to Equatorial Coronal Hole 27.
22	1625	N17	238	011	016	D	
22	1626	N18	275	009	015	D	Connected to Equatorial Coronal Hole 21.
23	1623	S16	224	013	027	E	
23	1624	S06	225	007	030	I	Uncertain Position.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
23	1625	S16	229	020	027	I	
23	1626	S12	247	014	009	E	
25	1623	N17	192	010	010	E	
25	1624	N19	175	021	026	E	
32	1625	N03	304	029	030	I	
32	1626	N06	311	037	034	R	
32	1627	N03	313	030	030	E	
38	1625	N13	110	015	014	E	
38	1626	N18	104	008	021	E	
38	1627	N22	108	011	017	E	
39	1625	N19	095	013	010	I	
39	1626	N30	090	015	010	E	
48	1627	S25	114	012	015	I	
48	1628	S22	109	024	025	E	Connected to Polar Coronal Hole 13.
57	1633	N22	306	007	003	D	
57	1634	N22	309	015	015	D	
57	1635	N18	300	017	013	E	
57	1636	N26	295	013	018	I	
57	1637	N27	301	014	014	I	
59	1633	S05	225	009	008	D	
59	1634	S01	174	005	009	C	
59	1635	N07	162	005	011	D	
61	1633	S20	142	022	029	I	
61	1634	S21	142	023	036	I	
61	1635	S07	100	025	023	I	
63	1633	N12	074	005	009	D	
63	1634	N20	069	013	022	E	
64	1634	N18	260	004	006	D	
64	1635	N27	292	017	021	I	
65	1634	N06	247	031	025	I	Disconnected from Polar Coronal Hole 17.
65	1635	N13	232	040	041	E	
65	1636	N12	250	020	021	E	
65	1637	N09	243	038	057	I	
65	1638	N16	260	033	060	R	
65	1639	N16	251	017	032	I	Related to Equatorial Coronal Hole 80.
77	1636	N16	114	011	012	E	
77	1637	N23	112	011	020	D	
77	1638	N29	100	015	020	C	
81	1645	N27	291	014	015	D	
81	1646	N13	310	013	012	D	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
81	1647	N18	330	023	023	R	Related to Polar Coronal Hole 26.
81	1648						No Data.
81	1649	N21	318	007	015	D	
81	1650	N28	305	008	027	E	
81	1651	N39	283	029	030	I	
81	1652	N39	269	027	019	E	Connected to Polar Coronal Hole 38.
85	1653	S28	051	006	008	C	
85	1654	S15	040	018	012	E	
86	1654	S20	357	010	023	E	
86	1655	S26	354	008	011	E	
86	1656	S21	347	007	011	D	
88	1654	N26	155	012	026	E	
88	1655	N32	139	015	029	I	Connected to Polar Coronal Hole 28.
89	1654	N24	073	009	010	D	
89	1655	N16	044	012	014	I	
93	1655	S33	076	021	022	I	Disconnected from Polar Coronal Hole 37.
93	1656	S30	060	004	011	E	
94	1655	N43	057	014	016	E	
94	1656	N30	027	004	014	E	
95	1656	S19	035	018	021	E	
95	1657	S30	034	020	038	E	Connected to Polar Coronal Hole 37.
97	1657	N11	160	017	014	D	
97	1658	N18	163	022	030	E	
97	1659	N12	169	015	019	D	
97	1660	N09	180	008	015	I	
98	1658	S23	173	005	011	D	
98	1659	S28	174	017	020	D	
105	1667	N30	173	007	010	D	
105	1668	N28	164	009	014	D	
105	1669	N32	140	005	007	C	
105	1670	N33	130	017	041	E	
105	1671	N30	139	010	022	E	
105	1672	N32	137	007	017	E	
110	1671	S22	113	015	022	D	Disconnected from Polar Coronal Hole 50.
110	1672	S25	102	010	015	E	
110	1673	S15	080	021	017	I	
110	1674	S20	064	010	012	D	
111	1672	N20	303	020	041	E	
111	1673	N11	281	020	014	I	
111	1674	N19	285	021	015	E	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
115	1674	N40	111	004	049	E	
115	1675	N33	093	017	011	E	
115	1676	N32	098	015	018	I	Related to Equatorial Coronal Hole 120.
119	1676	N25	160	010	021	E	
119	1677	N13	212	083	056	E	
119	1678	N22	222	015	016	E	
119	1679	N18	212	013	006	E	
119	1680	N14	209	012	011	I	
119	1681	N09	195	022	026	I	
119	1682	S01	205	008	015	D	
119	1683	N03	201	029	023	I	
119	1684	S01	200	055	035	E	Related to Equatorial Coronal Hole 133.
119	1685	N10	219	020	026	D	Connected to Polar Coronal Hole 70.
125	1678	N10	188	010	010	D	
125	1679	N14	193	032	015	E	
126	1678	N07	123	008	012	D	
126	1679	S01	118	004	007	C	
127	1679	S33	220	006	010	D	
127	1680	S32	190	011	015	D	
128	1679	S34	086	018	047	E	Disconnected from Polar Coronal Hole 64.
128	1680	S32	089	023	060	E	
133	1682	S33	239	017	017	E	
133	1683	S30	224	010	024	E	Connected to Equatorial Coronal Hole 119.
135	1682	N33	091	014	021	E	
135	1683	N30	090	009	012	D	
143	1686	S17	341	020	035	I	Related to Polar Coronal Hole 71.
143	1687	S20	332	010	020	E	
144	1686	N49	302	019	035	E	
144	1687	N42	291	025	039	E	
144	1688	N35	292	026	025	E	
144	1689	N09	294	044	010	E	
144	1690	00	290	022	022	I	
144	1691	S08	286	022	019	E	
144	1692	S02	297	005	010	D	
147	1688	S42	193	022	098	E	
147	1689	S41	186	014	020	E	
147	1690	S43	152	010	020	E	
147	1691	S28	140	020	014	E	
150	1690	N45	069	021	037	E	
150	1691	N44	083	009	030	E	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
150	1692	N48	013	012	085	E	
150	1693						Only the Longitude Drifted to the Next Carrington Rotation.
150	1694	N48	330	016	080	E	
150	1695	N45	348	010	024	I	
152	1692	N17	242	007	010	D	
152	1693	N17	241	005	016	E	
152	1694	N15	245	010	015	I	
152	1695	N18	247	008	013	D	
152	1696	N14	246	012	020	I	
152	1697	N08	249	024	009	E	
155	1694	S02	056	020	021	D	
155	1695	00	049	010	020	E	
155	1696	00	062	016	020	D	
156	1695	N50	290	020	061	E	
156	1696	N52	292	008	055	E	
156	1697	N53	277	006	045	E	
158	1695	S41	132	042	032	I	
158	1696	S39	130	018	040	E	
158	1697	S43	103	022	094	E	
158	1698	S42	052	033	136	E	
158	1699	S41	035	026	150	E	
158	1700	S34	094	016	028	E	Related to Equatorial Coronal Hole 167.
159	1695	N55	138	018	023	I	
159	1696	N55	134	022	045	E	
159	1697	N48	088	033	167	E	
159	1698	N48	103	027	066	R	
159	1699	N52	051	026	103	E	
159	1700	N56	020	010	096	E	
163	1698	N32	221	015	020	I	
163	1699	N31	214	008	030	E	
163	1700	N33	177	017	015	E	
166	1700	S22	208	023	016	E	
166	1701	S27	221	010	020	E	
166	1702	S23	182	021	080	E	Related to Equatorial Coronal Hole 169.
166	1703	S27	142	022	042	I	
166	1704	S31	120	022	023	I	
166	1705	S31	111	013	027	E	
167	1701	S49	351	020	118	I	Disconnected from Equatorial Coronal Hole 158.
167	1702	S40	300	023	080	E	
167	1703	S44	274	038	116	I	
167	1704	S42	264	035	096	R	

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
167	1705	S46	245	036	086	E	
167	1706	S48	243	027	097	E	Connected to Polar Coronal Hole 75.
168	1701	N04	285	012	012	E	
168	1702	N07	278	012	013	D	
171	1702	S37	059	037	069	E	
171	1703	S35	057	020	050	E	
171	1704	S47	006	026	052	E	
171	1705						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
171	1706	S51	349	018	022	E	Connected to Polar Coronal Hole 74.
178	1707	S28	148	015	022	E	
178	1708	S31	130	018	025	I	
181	1707	N43	018	050	052	E	Related to Equatorial Coronal Hole 180.
181	1708	N20	012	040	072	E	
181	1709	N05	055	010	020	E	Related to Equatorial Coronal Holes 188 and 189.
181	1710	N06	063	007	015	I	
181	1711	N08	067	010	010	I	
181	1712	N03	082	014	015	E	
181	1713	N05	088	021	013	I	
181	1714	S14	093	022	010	I	
181	1715	S10	108	010	012	I	
181	1716	S19	118	050	036	I	
181	1717	S03	129	039	031	E	
181	1718	S12	132	038	034	I	
181	1719	S07	144	031	020	E	
181	1720	N08	140	024	030	I	
181	1721	N10	133	006	007	D	
185	1709	N03	252	006	025	E	
185	1710	S03	248	014	012	E	
185	1711	S17	249	010	006	E	
185	1712	S18	251	013	020	I	
185	1713	S20	251	006	008	D	Related to Equatorial Coronal Hole 199.
185	1714	S25	253	014	022	I	
185	1715	S25	253	010	020	E	
185	1716	S29	237	011	017	D	
185	1717	S30	243	012	031	E	
185	1718	S35	220	014	060	E	Related to Equatorial Coronal Hole 207.
185	1719	S31	240	006	021	E	Related to Equatorial Coronal Holes 209 and 210.
186	1709	N22	220	008	020	D	
186	1710	N33	226	043	070	I	Related to Polar Coronal Hole 73.
186	1711	N35	203	030	052	I	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
186	1712	N41	168	043	100	E	
186	1713	N35	174	030	074	E	Connected to Polar Coronal Hole 280.
192	1710	N38	106	009	013	I	Related to Polar Coronal Hole 76.
192	1711	N35	104	012	026	I	
203	1716	S31	039	016	024	D	
203	1717	S26	030	032	029	I	
203	1718	S10	033	030	024	I	
203	1719	S05	050	044	043	I	
203	1720	N00	041	031	021	I	
203	1721	S11	070	048	060	I	
203	1722	S25	061	025	025	I	Related to Equatorial Coronal Hole 215 and Connected to Polar Coronal Hole 87.
206	1717	S35	318	013	014	D	Related to Equatorial Coronal Hole 205.
206	1718	S31	326	022	028	E	
210	1719	S33	178	023	062	I	Disconnected from Equatorial Coronal Hole 185.
210	1720	S37	150	040	110	I	
210	1721	S34	161	027	081	I	
210	1722	S31	138	041	113	I	Connected to Polar Coronal Hole 87.
215	1722	N10	027	029	045	I	Disconnected from Equatorial Coronal Hole 203.
215	1723	N14	030	042	061	I	
215	1724	N22	010	011	026	I	Related to Equatorial Coronal Hole 218.
215	1725	N17	000	010	008	D	
216	1724	S00	257	025	035	E	Disconnected from Polar Coronal Hole 86.
216	1725	N03	247	042	055	E	
216	1726	N17	268	018	027	E	Related to Equatorial Coronal Hole 220.
216	1727	N11	273	028	022	E	
218	1724	N10	060	010	008	I	Disconnected from Equatorial Coronal Hole 215.
218	1725	S04	056	012	013	I	
219	1725	S10	330	008	010	E	
219	1726	S12	325	006	011	E	
219	1727	S14	330	003	010	E	
219	1728	S16	315	017	059	I	Related to Equatorial Coronal Hole 223.
219	1729	N02	335	020	010	E	
219	1730	S06	316	008	019	E	Related to Equatorial Coronal Hole 232.
220	1726	S13	227	016	013	I	Disconnected from Equatorial Coronal Hole 216.
220	1727	S11	228	011	013	C	
221	1726	N33	305	011	026	E	
221	1727	N40	307	004	005	C	
221	1728	N21	325	014	051	E	
221	1729	N37	273	006	017	E	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
221	1730	N37	260	010	030	E	
221	1731	N21	250	033	025	I	
221	1732	N22	252	026	040	I	
221	1733	N21	252	018	037	E	
221	1734	N07	272	026	012	I	
221	1735	N03	278	022	014	I	
225	1728	N18	041	024	027	I	Related to Equatorial Coronal Hole 226.
225	1729	N09	040	015	032	E	
225	1730	N09	041	016	027	I	
225	1731	N09	032	022	026	I	
225	1732	N02	048	018	040	E	Connected to Equatorial Coronal Hole 231.
229	1729	N26	195	028	030	I	Disconnected from Polar Coronal Hole 86.
229	1730	N26	186	032	037	E	
229	1731	N25	181	030	048	E	
229	1732	N30	162	019	028	E	Related to Equatorial Coronal Hole 233.
229	1733	N25	163	014	018	D	
229	1734	N30	151	007	009	D	
229	1735	N30	142	011	014	I	
229	1736	N29	143	009	017	E	
231	1730	S06	080	023	018	I	
231	1731	S05	082	013	022	I	
231	1732	S07	097	034	030	I	
231	1733	S04	071	056	070	I	Related to Equatorial Coronal Holes 235 and 225.
231	1734	N12	061	045	074	I	Related to Equatorial Coronal Hole 237.
231	1735	N01	094	053	028	E	Related to Equatorial Coronal Holes 238 and 239.
231	1736	S05	104	018	008	E	
232	1731	N02	330	026	030	E	Related to Equatorial Coronal Hole 219.
232	1732	N07	333	049	021	I	Connected to Polar Coronal Hole 92.
233	1732	N12	200	017	012	I	Disconnected from Equatorial Coronal Hole 229.
233	1733	S06	195	048	016	E	Related to Equatorial Coronal Hole 234.
233	1734	S05	204	049	030	E	
233	1735	S12	208	046	027	I	
233	1736	N07	216	026	017	I	
233	1737	N09	211	013	018	D	
233	1738	N07	201	021	018	I	
233	1739	N23	190	010	017	I	
233	1740	N22	196	021	028	E	
233	1741	N02	185	055	030	I	
233	1742	N09	192	055	035	I	
233	1743	N18	191	016	020	D	Related to Equatorial Coronal Hole 251.
233	1744	N13	184	063	048	E	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
233	1745	N06	197	037	019	E	
233	1746	N10	208	020	016	E	
233	1747	N20	211	020	022	I	
233	1748	N13	230	017	020	I	
236	1733	N05	150	019	013	E	
236	1734	N08	150	009	011	I	
239	1735	N11	037	018	018	I	Disconnected from Equatorial Coronal Hole 231.
239	1736	N19	051	019	012	I	
239	1737	N28	040	013	013	C	
242	1738	S15	268	010	010	D	
242	1739	S11	272	023	016	I	
242	1740	S03	266	017	008	E	
242	1741	N09	273	010	006	I	Related to Equatorial Coronal Hole 249.
242	1742	S11	272	031	011	E	
242	1743	N17	273	014	012	E	
244	1739	N18	342	026	044	E	
244	1740	N20	336	020	064	E	
244	1741	N22	340	035	075	E	
244	1742	N14	352	034	062	E	Related to Equatorial Coronal Hole 250.
244	1743	N18	007	024	046	E	The Hole Drifted to One Carrington Rotation Before. It is Labeled Based on its Longitude.
244	1743	N13	025	007	008	E	
246	1739	S32	063	026	048	I	Disconnected from Polar Coronal Hole 87.
246	1740	S31	039	037	069	E	Connected to Polar Coronal Hole 87.
250	1742	N08	324	017	013	I	Disconnected from Equatorial Coronal Hole 244.
250	1743	N11	322	017	008	E	
250	1744	N21	328	018	024	I	
250	1745	N05	338	031	013	E	Related to Equatorial Coronal Hole 254 and Connected to Polar Coronal Hole 96.
252	1743	S25	099	012	023	I	
252	1744	S29	098	022	034	I	
255	1745	N04	049	025	035	I	Disconnected from Polar Coronal Hole 96.
255	1746	N10	061	020	022	I	
255	1747	N07	066	023	021	I	
255	1748	N17	078	035	037	I	
255	1749	N17	076	033	053	I	
255	1750	N28	059	026	066	E	Connected to Polar Coronal Hole 102.
257	1747	S07	005	022	011	I	Disconnected from Polar Coronal Hole 96.
257	1748	N00	016	019	010	E	
257	1749	S07	026	018	018	I	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
266	1753	S18	296	010	015	E	Disconnected from Polar Coronal Hole 100.
266	1754	S30	280	020	050	E	
276	1760	S28	221	015	026	D	Disconnected from Polar Coronal Hole 100.
276	1761	S13	249	035	014	E	
276	1762	S09	255	032	021	I	
276	1763	S12	249	038	030	I	
276	1764	S09	254	035	016	E	
276	1765	S04	268	044	022	I	
276	1766	S01	274	016	007	E	
276	1767	S11	276	029	020	E	
280	1762	N10	063	010	017	E	
280	1763	N20	070	017	023	I	
280	1764	N12	072	013	016	I	
280	1765	N08	079	007	014	I	
280	1766	N03	115	011	007	E	
285	1765	S04	052	013	020	I	
285	1766	00	055	012	012	D	
285	1767	N01	065	012	014	D	
286	1768	N02	131	017	013	E	
286	1769	N11	132	023	008	E	
287	1769	N11	013	012	008	E	
287	1770	N12	018	014	021	E	
287	1771	N16	012	017	020	E	
287	1772	N14	021	014	011	I	
287	1773	N20	021	020	018	E	
287	1774	N16	027	017	025	E	
287	1775	N20	026	023	039	E	
287	1776	N14	042	007	008	C	
287	1777	N25	021	011	011	I	
287	1778	N18	029	016	010	E	
297	1782	S26	194	009	009	I	
297	1783	S28	188	014	016	E	
298	1785	S31	133	017	017	D	
298	1786	S33	122	010	012	E	
305	1792	N29	148	016	023	E	Disconnected from Polar Coronal Hole 153.
305	1793	N44	132	028	032	E	
305	1794	N32	140	009	012	E	
309	1796	S24	131	019	018	D	
309	1797	S39	128	013	011	D	
309	1798	S36	116	012	015	E	
309	1799	S24	121	016	031	E	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
309	1800	S27	103	013	022	E	
309	1801	S33	079	006	013	E	
310	1797	N34	352	012	013	I	
310	1798	N30	338	020	027	E	
310	1799	N24	336	012	008	E	
310	1800	N28	339	014	019	I	
311	1798	N27	199	009	009	C	
311	1799	N40	204	010	015	E	
312	1798	S22	067	010	010	D	
312	1799	S18	065	009	014	D	
312	1800	S17	070	015	023	I	
312	1801	S26	045	007	006	D	
313	1799	N31	181	030	018	I	
313	1800	N29	179	018	020	I	
313	1801	N31	177	022	035	I	Connected to Polar Coronal Hole 167.
315	1801	S33	195	008	017	I	
315	1802	S33	186	007	055	E	
315	1803	S30	198	004	011	E	Related to Equatorial Coronal Hole 316.
315	1804	S27	175	015	030	I	
315	1805	S30	173	020	023	I	
315	1806	S25	169	030	043	I	Uncertain Position.
316	1803	S33	159	017	042	I	Disconnected from Equatorial Coronal Hole 315.
316	1804	S40	118	013	009	E	
316	1805	S42	102	015	017	I	Connected to Polar Coronal Hole 171.
318	1803	N26	014	007	009	I	
318	1804	N26	012	013	017	I	
318	1805	N30	000	021	028	E	
320	1805	N12	023	008	013	I	
320	1806	N10	034	010	013	I	Uncertain Position.
320	1807						No Data.
320	1808	N16	041	026	018	I	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
320	1809	N16	042	017	023	I	
320	1810	N17	035	024	025	I	
320	1811	N17	042	035	034	I	
320	1812	S03	032	016	011	D	
320	1813	N03	037	021	017	E	
320	1814	00	043	064	027	I	
320	1815	N10	042	026	022	I	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
322	1806	S40	317	012	012	I	Uncertain Position.
322	1807						No Data.
322	1808	S31	297	014	016	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
322	1809	S30	279	019	033	I	Connected to Polar Coronal Hole 173.
324	1806	N22	245	005	008	I	Uncertain Position.
324	1807						No Data.
324	1808	N32	242	012	015	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
325	1810	S17	206	021	015	E	
325	1811	S17	193	033	039	I	Connected to Polar Coronal Hole 173.
328	1813	N29	300	012	021	E	
328	1814	N29	292	020	035	E	
328	1815	N20	304	013	011	I	Related to Equatorial Coronal Holes 353 and 336.
328	1816	N25	274	009	008	D	
328	1817	N36	286	024	016	E	
330	1814	N25	357	010	005	I	
330	1815	N17	357	013	006	E	
332	1814	S35	277	017	019	I	
332	1815	S33	267	021	027	E	
332	1816	S40	238	024	027	I	
332	1817	S37	218	016	041	I	
332	1818	S35	184	025	036	I	
332	1819	S26	163	028	037	I	
332	1820	S32	155	019	046	I	
332	1821	S35	140	018	040	E	Related to Equatorial Coronal Hole 350.
332	1822	S33	137	026	026	I	
332	1823	S27	128	018	024	I	
332	1824	S29	118	018	014	I	
332	1825	S28	112	037	036	I	
332	1826	S23	122	012	012	E	Related to Equatorial Coronal Holes 363 and 364.
333	1814	N45	156	010	029	E	
333	1815	N25	148	050	107	I	
333	1816	N46	139	008	041	E	Related to Equatorial Coronal Holes 338 and 340.
333	1817	N44	100	003	020	E	
340	1816	N39	087	026	058	I	Disconnected from Equatorial Coronal Hole 333.
340	1817	N37	057	029	034	I	
340	1818	N35	050	026	040	I	
340	1819	N37	029	010	022	E	

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Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
341	1817	N36	334	008	012	E	Related to Equatorial Coronal Hole 342.
341	1818	N24	306	021	047	I	
343	1818	S31	271	011	010	I	
343	1819	S39	264	022	024	I	Related to Equatorial Coronal Hole 347.
343	1820	S43	245	017	010	E	
344	1818	N34	161	012	022	I	
344	1819	N33	164	033	050	I	
344	1820	N36	141	029	084	E	
344	1821	N36	125	019	100	I	
344	1822	N38	101	011	043	E	
344	1823	N33	088	023	016	I	
344	1824	N39	069	011	008	E	
344	1825	N20	053	013	037	I	
344	1826	N22	029	023	048	I	
344	1827	N26	018	028	057	I	
344	1828						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
344	1829						No Data.
344	1830	N20	348	008	021	E	Uncertain Position. The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
346	1818	N52	004	012	052	I	
346	1819						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
346	1820	N50	331	020	071	I	
346	1821	N44	314	014	049	E	Related to Equatorial Coronal Hole 349.
346	1822	N44	281	020	041	E	
346	1823	N39	260	026	041	I	Related to Equatorial Coronal Hole 349.
346	1824	N39	245	023	048	I	
346	1825	N40	210	028	052	E	
346	1826	N32	226	040	045	I	
346	1827	N37	187	035	088	E	
346	1828	N44	159	031	103	E	
346	1829						No Data.
346	1830	N31	170	018	030	E	Uncertain Position. The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector.
346	1831	N40	102	017	020	E	
348	1821	S27	298	005	007	E	
348	1822	S30	279	005	008	D	
348	1823	S29	269	014	029	I	

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
348	1824	S29	265	014	016	I	
349	1821	N48	266	015	035	I	Disconnected from Equatorial Coronal Hole 346.
349	1822	N42	248	020	023	I	Connected to Equatorial Coronal Hole 346.
350	1821	S31	099	023	031	I	Related to Equatorial Coronal Hole 332.
350	1822	S37	079	014	039	I	
350	1823	S41	065	006	021	E	
351	1821	N04	091	033	032	I	
351	1822	N15	093	010	006	E	
352	1821	N04	054	012	018	I	
352	1822	S05	049	030	019	I	
352	1823	N11	057	011	018	E	
354	1822	N19	181	015	022	I	
354	1823	N29	158	010	019	I	
354	1824	N25	147	016	020	I	
357	1823	S41	036	012	016	I	
357	1824	S40	021	016	033	I	
358	1824	N30	016	008	012	E	
358	1825	N28	001	017	018	I	Related to Equatorial Coronal Holes 359 and 360.
358	1826						The Hole Drifted to the Next Carrington Rotation, Based on its Longitude and Latitude.
358	1827	N33	332	013	026	I	
358	1828	N35	309	011	035	E	
361	1825	S25	252	030	025	E	
361	1826	S34	241	010	018	I	
361	1827	S33	226	022	037	I	
361	1828	S29	228	012	013	E	
362	1826	N20	325	014	011	I	
362	1827	N11	327	014	015	I	
365	1827	S49	025	022	069	I	
365	1828	S36	049	036	022	I	
365	1829						
365	1830	S40	347	040	026	I	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
365	1831	S44	319	039	072	E	
365	1832	S45	321	030	051	E	Uncertain Position.
365	1833	S38	312	005	011	E	Uncertain Position.
366	1828	S23	296	023	032	I	
366	1829						No Data.

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PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
366	1830	S12	282	015	011	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
368	1828	N16	095	012	015	D	
368	1829						
368	1830	00	057	020	010	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
368	1831	N19	033	035	066	I	Uncertain Position.
368	1832	N06	046	047	022	I	Uncertain Position.
368	1833	N05	059	024	022	I	Related to Equatorial Coronal Hole 379. Uncertain Position.
368	1834						No Data.
368	1835	S11	065	052	030	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
368	1836	N05	062	030	039	E	Uncertain Position.
368	1837	N01	073	008	012	I	Related to Equatorial Coronal Hole 389. Uncertain Position.
369	1830	N12	263	015	018	I	Uncertain Position.
369	1831	N17	263	038	024	I	Uncertain Position.
369	1832	N01	251	070	062	I	Uncertain Position.
369	1833	N35	246	030	062	I	Related to Equatorial Coronal Hole 378. Uncertain Position.
369	1834						No Data.
369	1835	N33	213	023	042	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
373	1831	N55	262	030	075	I	Uncertain Position.
373	1832	N50	237	020	030	I	Uncertain Position.
374	1831	N11	160	012	010	D	Uncertain Position.
374	1832	S04	150	008	004	E	Uncertain Position.
376	1832	S18	015	009	014	E	Uncertain Position.
376	1833	S16	016	013	014	E	Uncertain Position.
377	1833	N19	336	013	012	I	Uncertain Position.
377	1834						No Data.
377	1835	N31	318	022	036	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
377	1836	N35	294	010	032	E	Uncertain Position.
377	1837	N40	285	007	014	E	Uncertain Position.
380	1835	S03	217	012	009	E	Uncertain Position.
380	1836	S05	219	030	012	E	Uncertain Position.
381	1835	N53	112	033	035	I	Uncertain Position.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
381	1836	N51	131	058	058	I	Uncertain Position.
381	1837	N51	112	058	055	I	Uncertain Position.
381	1838	N57	076	045	082	E	Related to Equatorial Coronal Holes 392 and 394. Uncertain Position.
382	1835	S04	117	016	007	E	Uncertain Position.
382	1836	S09	117	022	018	E	Uncertain Position.
383	1836	S20	307	007	009	I	Uncertain Position.
383	1837	S17	310	025	012	E	Uncertain Position.
383	1838	S25	314	030	023	E	Uncertain Position.
384	1836	S45	304	010	012	E	Uncertain Position.
384	1837	S41	299	007	018	I	Uncertain Position.
389	1837	N25	057	030	028	I	Disconnected from Equatorial Coronal Hole 368. Uncertain Position.
389	1838	N20	052	034	031	I	Uncertain Position.
389	1839	N26	038	022	017	E	Related to Equatorial Coronal Hole 397. Uncertain Position.
390	1838	S33	265	015	020	I	Uncertain Position.
390	1839	S04	269	028	022	E	Uncertain Position.
390	1840	N02	272	015	015	E	Uncertain Position.
391	1838	S03	225	014	014	E	Uncertain Position.
391	1839	S03	235	007	005	E	Uncertain Position.
391	1840	S11	241	022	011	I	Uncertain Position.
391	1841						No Data.
391	1842	S12	226	024	057	I	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
391	1843	S06	253	007	010	I	Uncertain Position.
391	1844	N03	253	020	009	E	Uncertain Position.
391	1845						No Data.
391	1846	00	272	032	023	I	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
391	1847	N05	268	030	029	I	Uncertain Position.
391	1848	S02	268	032	020	I	Uncertain Position.
391	1849	N11	238	038	017	I	Uncertain Position.
393	1839	N22	198	010	013	E	Uncertain Position.
393	1840	N13	184	016	015	I	Uncertain Position.
394	1839	N36	101	018	032	E	Disconnected from Equatorial Coronal Hole 381. Uncertain Position.
394	1840	N49	080	005	036	E	Uncertain Position.
395	1839	S11	076	042	027	I	Uncertain Position.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
395	1840	S11	093	011	005	E	Related to Equatorial Coronal Hole 399. Uncertain Position.
396	1839	N24	080	028	020	I	Uncertain Position.
396	1840	N21	082	009	020	I	Uncertain Position.
396	1841						No Data.
396	1842	N38	065	005	010	D	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
397	1839	N06	058	007	009	I	Disconnected from Equatorial Coronal Hole 389. Uncertain Position.
397	1840	N24	057	012	015	I	Uncertain Position.
398	1840	S39	240	010	007	I	Uncertain Position.
398	1841						No Data.
398	1842	S54	212	012	080	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
398	1843	S45	252	010	035	E	Uncertain Position.
398	1844	S47	260	010	026	E	Uncertain Position.
399	1840	N05	092	006	009	E	Disconnected from Equatorial Coronal Hole 395. Uncertain Position.
399	1841						No Data.
399	1842	N11	068	008	023	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
402	1842	S20	162	020	035	I	Uncertain Position.
402	1843	S22	137	032	042	E	Related to Equatorial Coronal Hole 403. Uncertain Position.
402	1844	S25	129	026	036	I	Uncertain Position.
402	1845						No Data.
402	1846	S16	107	068	055	I	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position. Connected to Polar Coronal Hole 181.
404	1842	N01	004	025	018	E	Uncertain Position.
404	1843	N06	018	012	010	I	Uncertain Position.
405	1843	S18	217	013	012	E	Uncertain Position.
405	1844	S10	230	010	012	I	Uncertain Position.
407	1843	N15	105	022	014	E	Uncertain Position.
407	1844	N12	112	020	011	I	Uncertain Position.
409	1844	N11	301	022	011	E	Uncertain Position.
409	1845						No Data.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

PARTICULAR CATALOGUE OF EQUATORIAL CORONAL HOLES

Coronal Hole Number	Carrington Rotation	Heliographic Latitude	Carrington Longitude	Extent in Latitude	Extent in Longitude	Shape	Remarks
409	1846	N08	315	017	006	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
411	1844	S31	005	017	010	I	Uncertain Position.
411	1845						No Data.
411	1846	S53	010	013	008	E	The Coronal Hole was identified based on the drift of the photospheric sector deduced by the evolution of the magnetic sector. Uncertain Position.
412	1847	S05	224	045	012	E	Uncertain Position.
412	1848	S16	220	022	020	I	Uncertain Position.
412	1849	S15	213	016	027	I	Uncertain Position.
414	1847	N14	019	012	014	E	Uncertain Position.
414	1848	N15	029	010	007	E	Uncertain Position.
414	1849	N05	023	010	007	E	Uncertain Position.
417	1848	S21	157	032	015	I	Uncertain Position.
417	1849	S03	140	010	007	E	Uncertain Position.

All remarks regarding Polar or Equatorial Coronal Holes refer to the General Catalogues.

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UAG-10 ATLAS OF IONOGRAMS, edited by A.H. Shapley, ESSA Research Laboratories [now NOAA], Boulder, CO, May 1970, 243 pp.

UAG-11 [Superseded by UAG-30]

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UAG-13 DATA ON THE SOLAR PROTON EVENT OF NOVEMBER 2, 1969, THROUGH THE GEOMAGNETIC STORM OF NOVEMBER 8-10, 1969, compiled by Dale B. Bucknam and J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, ESSA [now NOAA], Boulder, CO, May 1971, 76 pp.

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UAG-26 DATA COMPILATION FOR THE MAGNETOSPHERICALLY QUIET PERIODS FEBRUARY 19-23 AND NOVEMBER 29 - DECEMBER 3, 1970, compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, May 1973, 129 pp.

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UAG-29 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1968, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, October 1973, 148 pp.

UAG-30 CATALOGUE OF DATA ON SOLAR-TERRESTRIAL PHYSICS, prepared by NOAA Environmental Data Service, Boulder, CO, October 1973, 317 pp. Supersedes catalogs UAG-11, 15 and 20.

UAG-31 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1969, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, February 1974, 142 pp.

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UAG-37 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(10) FOR 1966, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, December 1974, 142 pp.

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UAG-39 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1971, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, February 1975, 144 pp.

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UAG-42 OBSERVATIONS OF JUPITER'S SPORADIC RADIO EMISSION IN THE RANGE 7.6-80 MHZ, 10 DECEMBER 1971 THROUGH 21 MARCH 1975, by James W. Warwick, George A. Dulk and Anthony C. Riddle, University of Colorado, Boulder, CO, April 1975, 49 pp.

UAG-43 CATALOG OF OBSERVATION TIMES OF GROUND-BASED SKYLAB-COORDINATED SOLAR OBSERVING PROGRAMS, compiled by Helen E. Coffey, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, May 1975, 159 pp.

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UAG-48 [Superseded by UAG-48A]

UAG-48A SYNOPTIC OBSERVATIONS OF THE SOLAR CORONA DURING CARRINGTON ROTATIONS 1580-1596 (11 OCTOBER 1971 - 15 JANUARY 1973), [Re-issue of UAG-48 with quality images], by R.A. Howard, M.J. Koomen, D.J. Michels, R. Tousey, C.R. Detwiler, D.E. Roberts, R.T. Seal, and J.D. Whitney, U.S. Naval Research Laboratory, Washington, DC; and R.T. Hansen and S.F. Hansen, C.J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, CO, February 1976, 200 pp. Supersedes UAG-48.

UAG-49 [Superseded by UAG-92]

UAG-50 HIGH-LATITUDE SUPPLEMENT TO THE URSI HANDBOOK ON IONOGRAM INTERPRETATION AND REDUCTION, edited by W.R. Piggott, British Antarctic Survey, c/o Appleton Laboratory, Slough, UK, October 1975, 294 pp.

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UAG-53 DESCRIPTION AND CATALOG OF IONOSPHERIC F-REGION DATA, JICAMARCA RADIO OBSERVATORY (NOVEMBER 1966 - APRIL 1969), by W.L. Clark and T.E. Van Zandt, NOAA Aeronomy Laboratory, Boulder, CO, and J.P. McClure, University of Texas at Dallas, Dallas, TX, April 1976, 10 pp.

UAG-54 [Superseded by UAG-85]

UAG-55 EQUIVALENT IONOSPHERIC CURRENT REPRESENTATIONS BY A NEW METHOD, ILLUSTRATED FOR 8-9 NOVEMBER 1969 MAGNETIC DISTURBANCES, by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO; H.W. Kroehl, Data Studies Division, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, CO; Joe Haskell Allen, Data Studies Division, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, AK, April 1976, 91 pp, $4.00 (microfiche only).

UAG-56 ISO-INTENSITY CONTOURS OF GROUND MAGNETIC H PERTURBATIONS FOR THE DECEMBER 16-18, 1971, GEOMAGNETIC STORM, Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO, April 1976, 37 pp.

UAG-57 MANUAL ON IONOSPHERIC ABSORPTION MEASUREMENTS, edited by K. Rawer, Institut fur Physikalische Weltraumforschung, Freiburg, GFR, June 1976, 302 pp.

UAG-58 ATS-6 RADIO BEACON ELECTRON CONTENT MEASUREMENTS AT BOULDER, JULY 1974 - MAY 1975, by R.B. Fritz, NOAA Space Environment Laboratory, Boulder, CO, September 1976, 61 pp.

UAG-59 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1974, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, December 1976, 144 pp.

UAG-60 GEOMAGNETIC DATA FOR JANUARY 1976 [AE(7) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, July 1977, 57 pp.

UAG-61 COLLECTED DATA REPORTS FOR STIP INTERVAL II 20 MARCH - 5 MAY 1976, edited by Helen E. Coffey and John A. McKinnon, World Data Center A for Solar-Terrestrial Physics, Boulder, CO, August 1977, 313 pp.

UAG-62 GEOMAGNETIC DATA FOR FEBRUARY 1976 [AE(7) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, September 1977, 55 pp.

UAG-63 GEOMAGNETIC DATA FOR MARCH 1976 [AE(7) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, September 1977, 57 pp.

UAG-64 GEOMAGNETIC DATA FOR APRIL 1976 [AE(8) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, February 1978, 55 pp.

UAG-65 THE INFORMATION EXPLOSION AND ITS CONSEQUENCES FOR DATA ACQUISITION, DOCUMENTATION, PROCESSING, by G.K. Hartmann, Max-Planck-Institut fur Aeronomie, Lindau, GFR, May 1978, 36 pp.

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UAG-69 SELECTED DISTURBED D-REGION ELECTRON DENSITY PROFILES. THEIR RELATION TO THE UNDISTURBED D REGION, by L.F. McNamara, Ionospheric Prediction Service, Sydney, Australia, October 1978, 50 pp, $4.00 (microfice only).

UAG-70 ANNOTATED ATLAS OF H-ALPHA SYNOPTIC CHARTS FOR SOLAR CYCLE 20 (1964-1974) CARRINGTON SOLAR ROTATIONS 1487-1616, by Patrick S. McIntosh, NOAA Space Environment Laboratory, Boulder, CO, February 1979, 327 pp.

UAG-71 MAGNETIC POTENTIAL PLOTS OVER THE NORTHERN HEMISPHERE FOR 26-28 MARCH 1976, A.D. Richmond, NOAA Space Environment Laboratory, Boulder, CO; H.W. Kroehl, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; M.A. Henning, Lockheed Missiles and Space Co., Aurora, CO; and Y. Kamide, Kyoto Sangyo University, Kyoto, Japan, April 1979, 118 pp.

UAG-72 ENERGY RELEASE IN SOLAR FLARES, PROCEEDINGS OF THE WORKSHOP ON ENERGY RELEASE IN FLARES, 26 FEBRUARY - 1 MARCH 1979, CAMBRIDGE, MASSACHUSETTS, U.S.A., edited by David M. Rust, American Science and Engineering, Inc., Cambridge, MA; and A. Gordon Emslie, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, July 1979, 68 pp, $4.00 (microfiche only).

UAG-73 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11-12) FOR JANUARY - JUNE 1975, by Joe Haskell Allen, Carl C. Abston, J.E. Salazar and J.A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO, August 1979, 114 pp, $4.00 (microfiche only).

UAG-74 ATS-6 RADIO BEACON ELECTRON CONTENT MEASUREMENTS AT OOTACAMUND, INDIA, OCTOBER - JULY 1976, by S.D. Bouwer, K. Davies, R.F. Donnelly, R.N. Grubb, J.E. Jones and J.H. Taylor, NOAA Space Environment Laboratory, Boulder, CO; and R.G. Rastogi, M.R. Deshpande, H. Chandra and G. Sethia, Physical Research Laboratory, Ahmedabad, India, March 1980, 58 pp.

UAG-75 THE ALASKA IMS MERIDIAN CHAIN: MAGNETIC VARIATIONS FOR 9 MARCH - 27 APRIL 1978, by H.W. Kroehl and G.P. Kosinski, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; S.-I. Akasofu, G.J. Romick, C.E. Campbell and G.K. Corrick, University of Alaska, Fairbanks, AK; and C.E. Hornback and A.M. Gray, NOAA Space Environment Laboratory, Boulder, CO, June 1980, 107 pp.

UAG-76 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(12) FOR JULY - DECEMBER 1975, by Joe Haskell Allen, Carl C. Abston, J.E. Salazar and J.A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO, August 1980, 116 pp.

UAG-77 SYNOPTIC SOLAR MAGNETIC FIELD MAPS FOR THE INTERVAL INCLUDING CARRINGTON ROTATIONS 1601-1680, MAY5, 1973 - APRIL 26, 1979, by J. Harvey, B. Gillespie, P. Miedaner and C. Slaughter, Kitt Peak National Observatory, Tucson, AZ, August 1980, 66 pp.

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UAG-79 SOLAR OBSERVATIONS DURING SKYLAB, APRIL 1973 - FEBRUARY 1974, I. CORONAL X-RAY STRUCTURE, II. SOLAR FLARE ACTIVITY, by J.M. Hanson, University of Michigan, Ann Arbor, MI; and E.C. Roelof and and R.E. Gold, The Johns Hopkins University, Laurel, MD, December 1980, 43 pp.

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UAG-81 EVOLUTIONARY CHARTS OF SOLAR ACTIVITY (CALCIUM PLAGES) AS FUNCTIONS OF HELIOGRAPHIC LONGITUDE AND TIME, 1964-1979, by E. Ruth Hedeman, Helen W. Dodson and Edmond C. Roelof, The Johns Hopkins University, Laurel, MD, August 1981, 103 pp.

UAG-82 INTERNATIONAL REFERENCE IONOSPHERE - IRI 79, edited by J. Virginia Lincoln and Raymond O. Conkright, National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO, November 1981, 243 pp.

UAG-83 SOLAR-GEOPHYSICAL ACTIVITY REPORTS FOR SEPTEMBER 7-24, 1977 AND NOVEMBER 22, 1977, Parts 1 and 2, compiled by John A. McKinnon and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, February 1982, 553 pp.

UAG-84 CATALOG OF AURORAL RADIO ABSORPTION DURING 1976-1979 AT ABISKO, SWEDEN, by J.K. Hargreaves, C.M. Taylor and J.M. Penman, Environmental Sciences Department, University of Lancaster, Lancaster, UK, July 1982, 69 pp.

UAG-85 [Superseded by UAG-91]

UAG-86 [Superseded by UAG-92]

UAG-87 CHANGES IN THE GLOBAL ELECTRIC FIELDS AND CURRENTS FOR MARCH 17-19, 1978, FROM SIX IMS MERIDIAN CHAINS OF MAGNETOMETERS, by Y. Kamide, Kyoto Sangyo University, Kyoto, Japan; H.W. Kroehl, National Geophysical Data Center, NOAA, Boulder, CO; and A.D. Richmond, NOAA Space Environment Laboratory, Boulder, CO, November 1982, 102 pp.

UAG-88 NUMERICAL MODELING OF IONOSPHERIC PARAMETERS FROM GLOBAL IMS MAGNETOMETER DATA FOR THE CDAW-6 INTERVALS, by Y. Kamide, Kyoto Sangyo University, Kyoto, Japan; H.W. Kroehl, National Geophysical Data Center, NOAA, Boulder, CO; and B.A. Hausman, National Geophysical Data Center, NOAA, Boulder, CO, November 1983, 197 pp.

UAG-89 ATMOSPHERIC HANDBOOK: ATMOSPHERIC DATA TABLES AVAILABLE ON COMPUTER TAPE, by V.E. Derr, NOAA Environmental Research Laboratories, Boulder, CO, July 1984, 56 pp.

UAG-90 EXPERIENCE WITH PROPOSED IMPROVEMENTS OF THE INTERNATIONAL REFERENCE IONOSPHERE (IRI): CONTRIBUTED PAPERS, MAINLY FROM THE URSI-COSPAR WORKSHOP HELD IN BUDAPEST IN 1980, edited by K. Rawer, University of Freiburg, Federal Republic of Germany, and C.M. Minnis, International Union of Radio Science (URSI), Brussels, Belgium, May 1984, 233 pp.

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UAG-92 INTERNATIONAL CATALOG OF GEOMAGNETIC DATA, compiled by C.C. Abston, National Geophysical Data Center, NOAA, Boulder, CO; N.E. Papitashvili, Academy of Sciences of the USSR, World Data Center B2, Moscow, USSR; and V.O. Papitashvili, IZMIRAN, Moscow Region, USSR, August 1985, 291 pp. Supersedes UAG-35, 49, and 86.

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UAG-94 THE SOLAR MAGNETIC FIELD--1976 THROUGH 1985: AN ATLAS OF PHOTOSPHERIC MAGNETIC FIELD OBSERVATIONS AND COMPUTED CORONAL MAGNETIC FIELDS FROM THE JOHN M. WILCOX SOLAR OBSERVATORY AT STANFORD, by J. Todd Hoeksema and Philip H. Scherrer, Center for Space Science and Astrophysics, Stanford University, Stanford, CA, January 1986, 370 pp.

UAG-95 SUNSPOT NUMBERS: 1610-1985, (based on THE SUNSPOT-ACTIVITY IN THE YEARS 1610-1960, by Prof. M. Waldmeier, Copyright 1961, Swiss Federal Observatory, Zurich, Switzerland), revised by John A. McKinnon, National Geophysical Data Center, NOAA, Boulder, CO, January 1987, 112 pp.

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UAG-97 NUMERICAL MODELING OF POLAR IONOSPHERIC ELECTRODYNAMICS FOR JULY 23-24, 1983, UTILIZING IONOSPHERIC CONDUCTANCES DEDUCED FROM DMSP X-RAY IMAGES, by B.-H. Ahn, Kyungpook National University, Taegu, Korea; E. Friis-Christensen, Division of Geophysics, Danish Meteorological Institute, Copenhagen, Denmark; D.J. Gorney, Space Sciences Laboratory, The Aerospace Corporation, Los Angeles, CA; Y. Kamide, Kyoto Sangyo University, Kyoto, Japan; and H.W. Kroehl, National Geophysical Data Center, NOAA, Boulder, CO, April 1988, 133 pp.

UAG-98 TYPE II SOLAR RADIO BURSTS RECORDED AT WEISSENAU 1966-1987, by H.W. Urbarz, Astronomical Institute of Tubingen University, Weissenau Station, 7980 Rasthalde, Ravensburg, GFR, February 1990, 86 pp.

UAG-99 PROCEEDINGS OF THE WORKSHOP ON GEOPHYSICAL INFORMATICS, MOSCOW, AUGUST 14-18, 1988, edited by J.H. Allen, National Geophysical Data Center, NOAA, Boulder, CO; and V.A. Nechitailenko, Soviet Geophysical Committee, Academy of Sciences of the USSR, Moscow, USSR, January 1991, 304 pp.

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UAG-101 ATLAS OF STACKPLOTS DERIVED FROM SOLAR SYNOPTIC CHARTS, Evolution of Large-Scale Magnetic Fields and Coronal Holes from H-alpha Synoptic Charts: 1966-1987, by P.S. McIntosh, NOAA Space Environment Laboratory, Boulder, CO; and E.C. Willock and R.J. Thompson, IPS Radio and Space Services, West Chatswood, New South Wales 2057, Australia, October 1991, 188 pp.

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