Supplement of

Subseasonal midlatitude prediction skill following Quasi-Biennial Oscillation and Madden–Julian Oscillation activity

Kirsten J. Mayer and Elizabeth A. Barnes

Correspondence to: Kirsten J. Mayer (kjmayer@rams.colostate.edu)

ECMWF   NCEP

without ENSO	N	with ENSO	N	without ENSO	N	with ENSO	N
MJO	326		870	MJO	233		724
no MJO	161		437	no MJO	127		356
EQBO-MJO	162		384	EQBO-MJO	112		340
WQBO-MJO	90		340	WQBO-MJO	65		256
NQBO-MJO	74		142	NQBO-MJO	56		128
EQBO-noMJO	50		121	EQBO-noMJO	40		79
WQBO-noMJO	99		269	WQBO-noMJO	84		225
NQBO-noMJO	12		47	NQBO-noMJO	3		52

Table S1. Sample sizes for combinations of QBO-MJO for ECMWF and NCEP with and without ENSO.
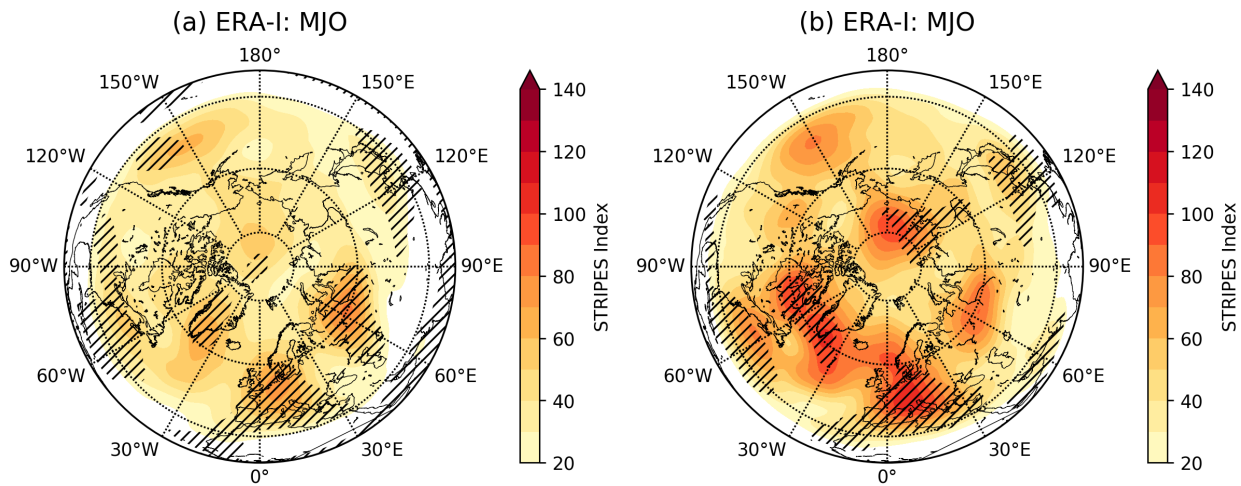

Figure S1. STRIPES values for (left) ECMWF hindcasts' dates in ERA-I and (right) NCEP hindcasts' dates in ERA-I for all MJO events. Black hatches denote STRIPES values that are statistically larger than expected by chance at 90% confidence in ERA-I.
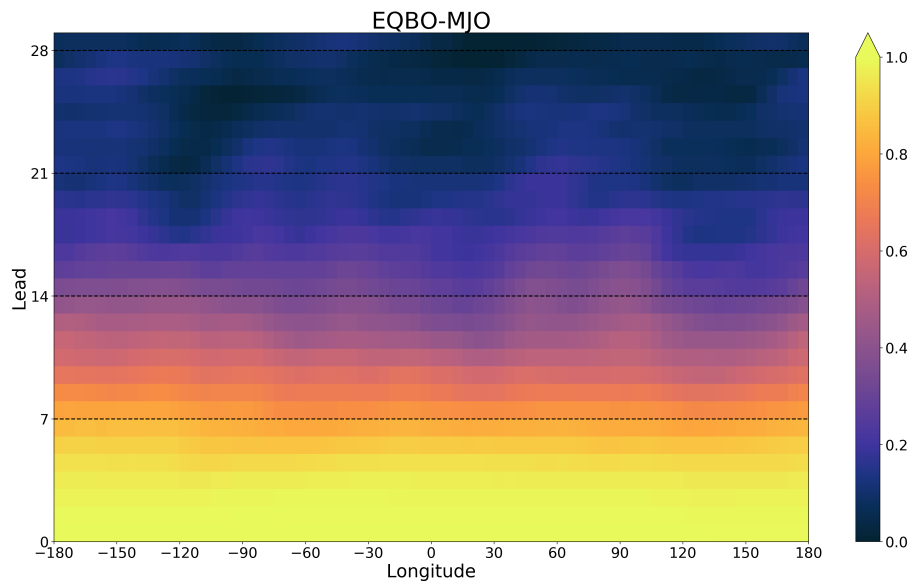
Figure S2. Spatial correlations between ERA-I and ECMWF across longitudes and for leads 0-28 days averaged over EQBO-MJO events. Correlations are calculated within a $60°$ wide longitude box, centered at each longitude spanning 30-60°N.
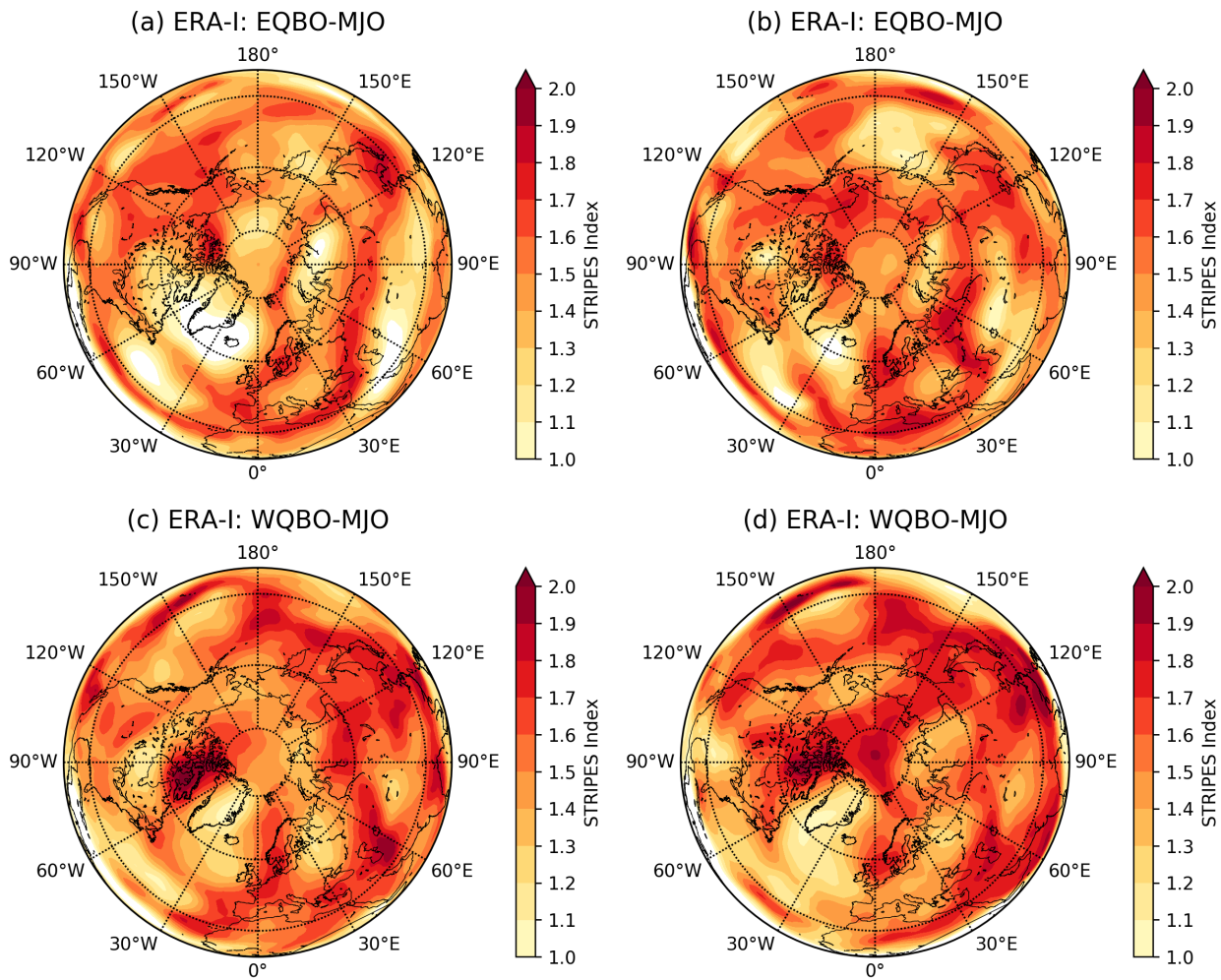
Figure S3. Normalized STRIPES values for (left) ECMWF hindcasts' dates in ERA-I and (right) NCEP hindcasts' dates in ERA-I for (top) EQBO-MJO and (bottom) WQBO-MJO events. Data is normalized by dividing by the average absolute value of the Phase vs Lead diagram for each latitude-longitude point and then calculating STRIPES on these normalized values. By doing so, we are able to reduce the impact of the anomaly magnitude on the STRIPES index, and thus, the index mainly provides information on the "stripey-ness".
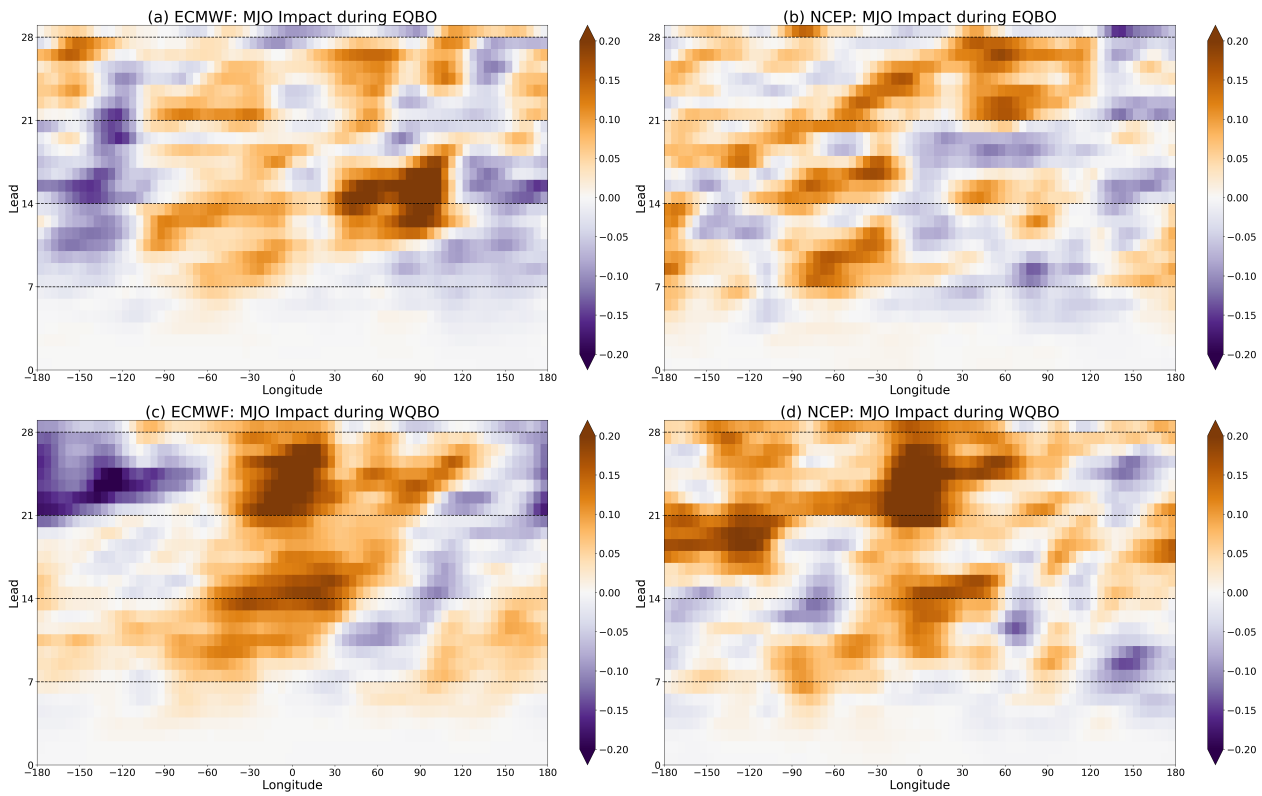
Figure S4. Anomalous correlation coefficient between (top) EQBO-MJO and EQBO-noMJO and (bottom) WQBO-MJO and WQBO-noMJO for (left) ECMWF and (right) NCEP at each longitude and lead from model initialization.
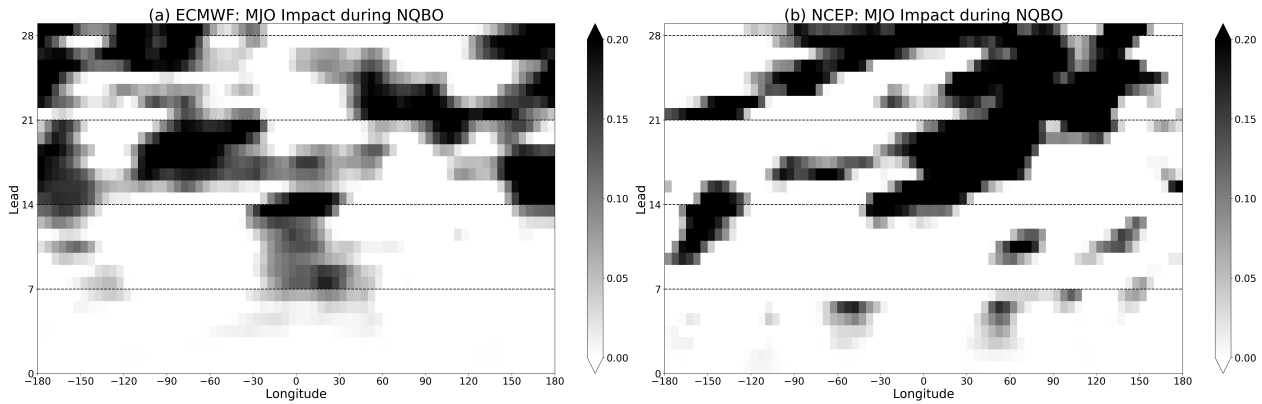

Figure S5. Anomalous correlation coefficient between NQBO-MJO and NQBO-noMJO for (a) ECMWF and (b) NCEP at each longitude and lead from model initialization without ENSO.
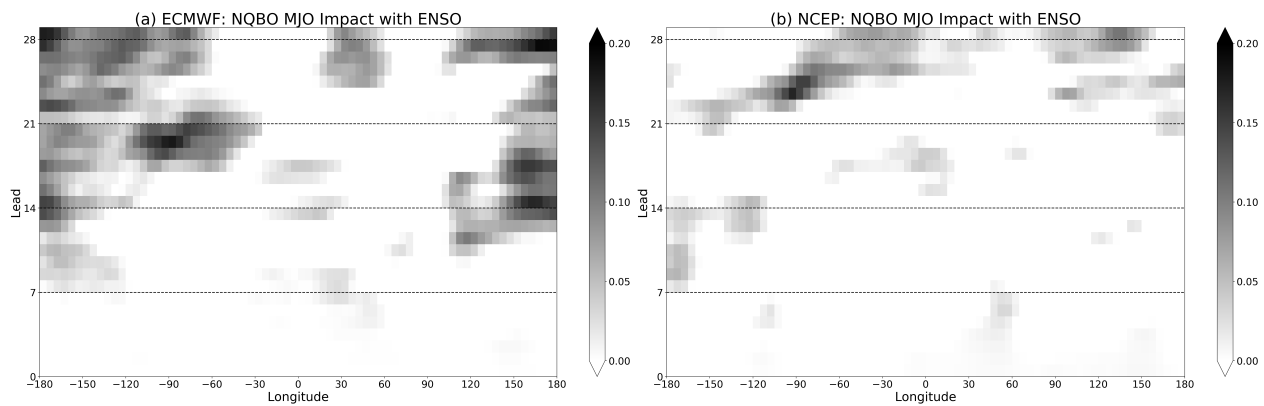
Figure S6. Anomalous correlation coefficient between NQBO-MJO and NQBO-noMJO for (a) ECMWF and (b) NCEP at each longitude and lead from model initialization with ENSO.
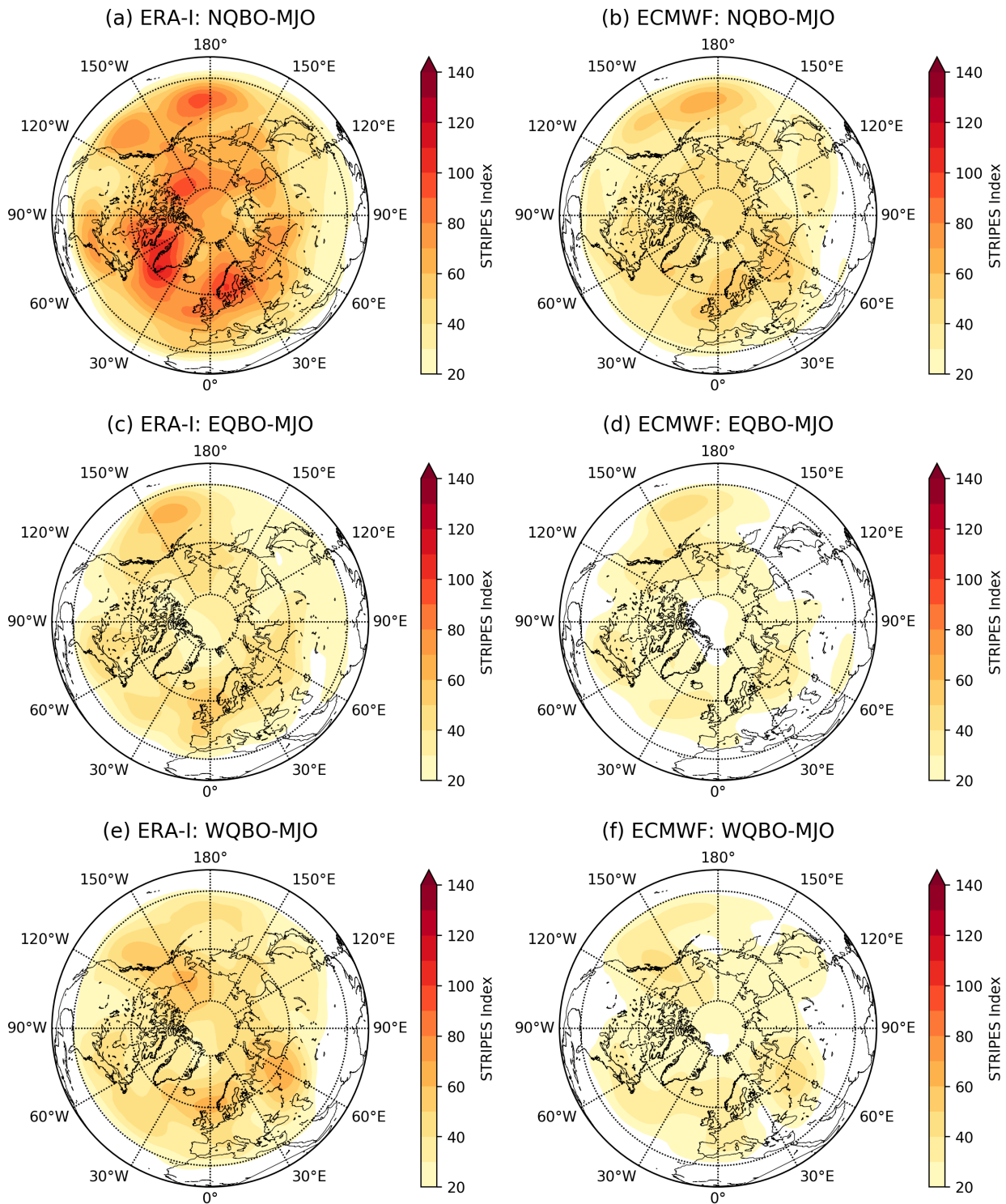
Figure S7. STRIPES values for (left) ERA-Interim and (right) ECMWF for all (top) NQBO-MJO, (middle) EQBO-MJO and (bottom) WQBO-MJO events with ENSO.
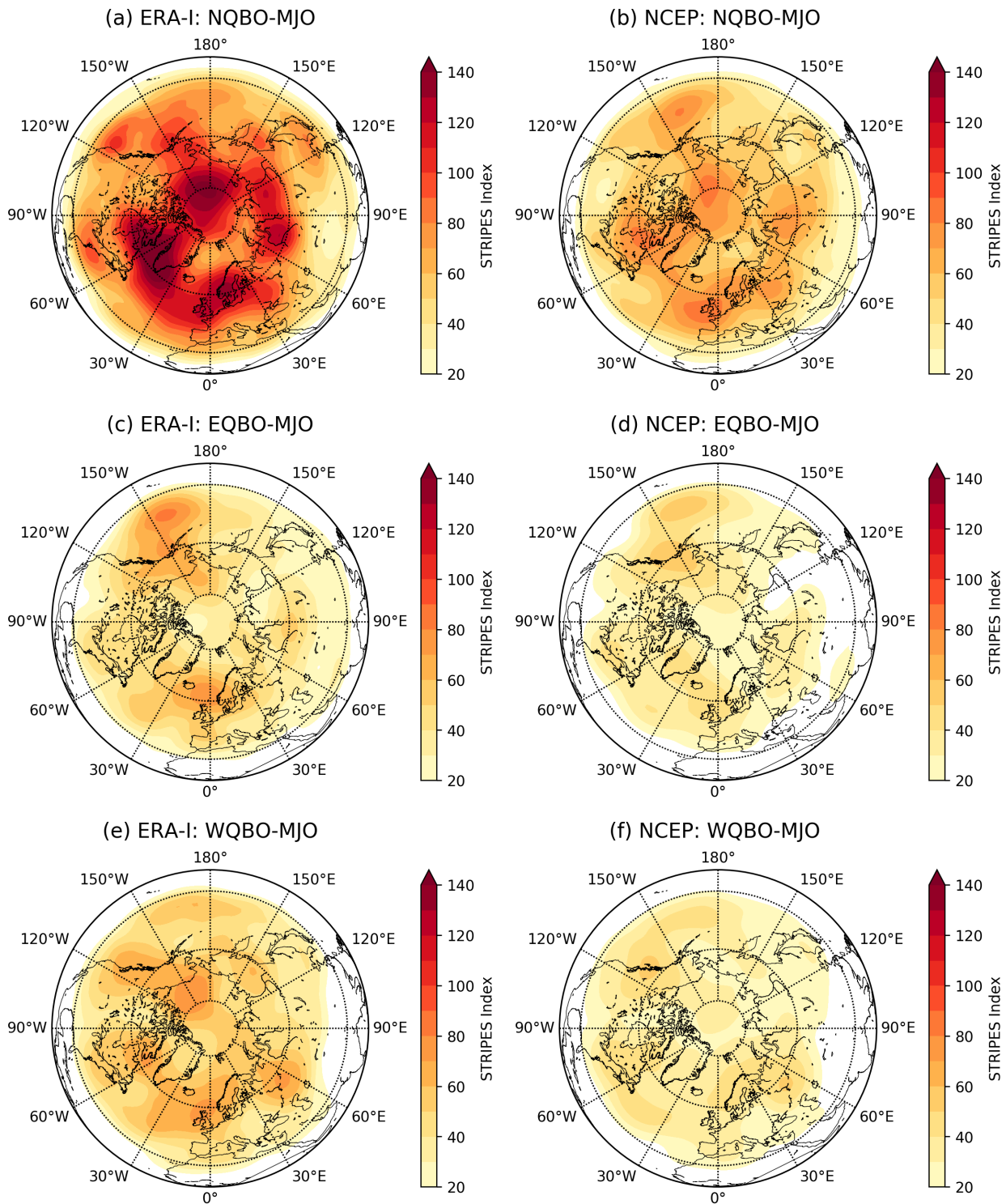
Figure S8. STRIPES values for (left) ERA-Interim and (right) NCEP for all (top) NQBO-MJO, (middle) EQBO-MJO and (bottom) WQBO-MJO events with ENSO.
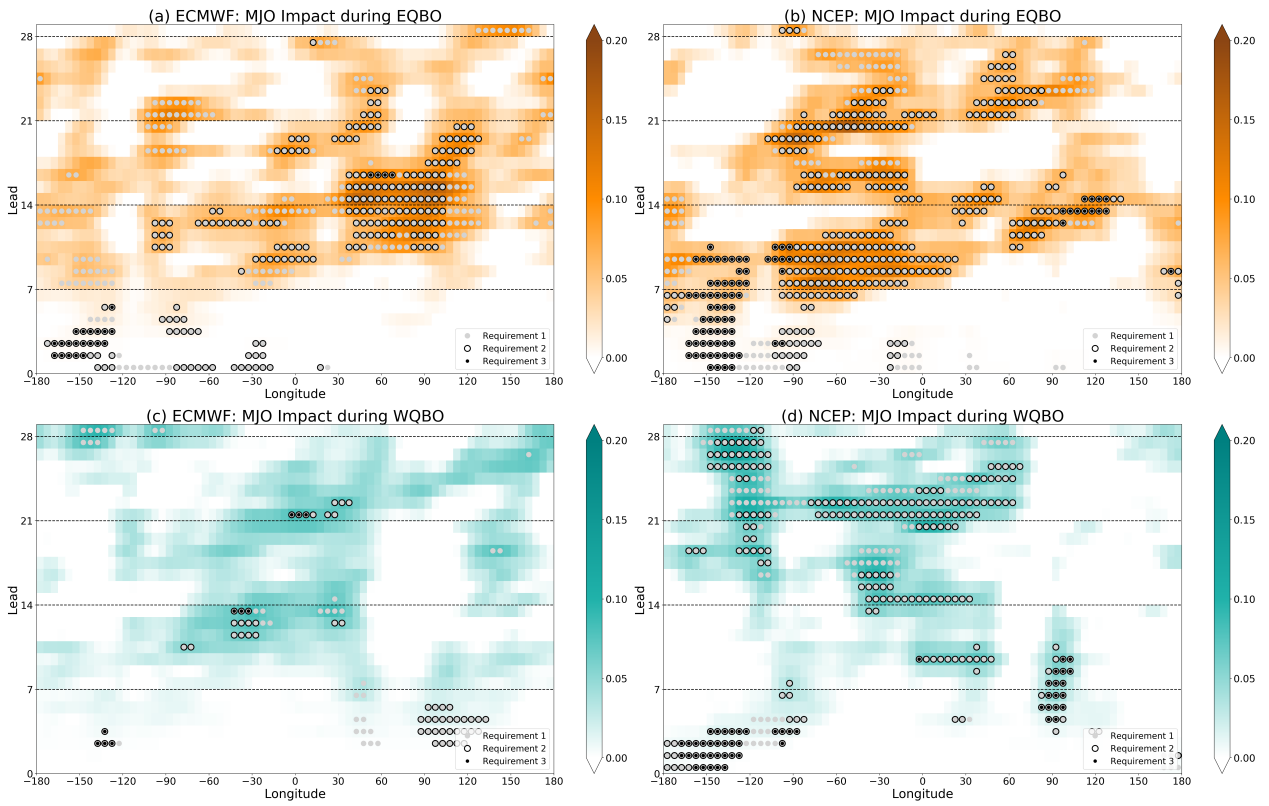
Figure S9. Anomalous correlation coefficient with ENSO included between (top) EQBO-MJO and EQBO-noMJO and (bottom) WQBO-MJO and WQBO-noMJO for (left) ECMWF and (right) NCEP at each longitude and lead from model initialization. Grey dots denote regions/leads where requirement 1 is passed at 90% confidence. Black circles indicate where requirement 2 is passed at 90% confidence and black dots indicate where requirement 3 is passed at 90% confidence. See text for details.