BAMS Supplement

Ocean Reference Stations

Long-Term, Open-Ocean Observations of Surface Meteorology and Air–Sea Fluxes Are Essential Benchmarks

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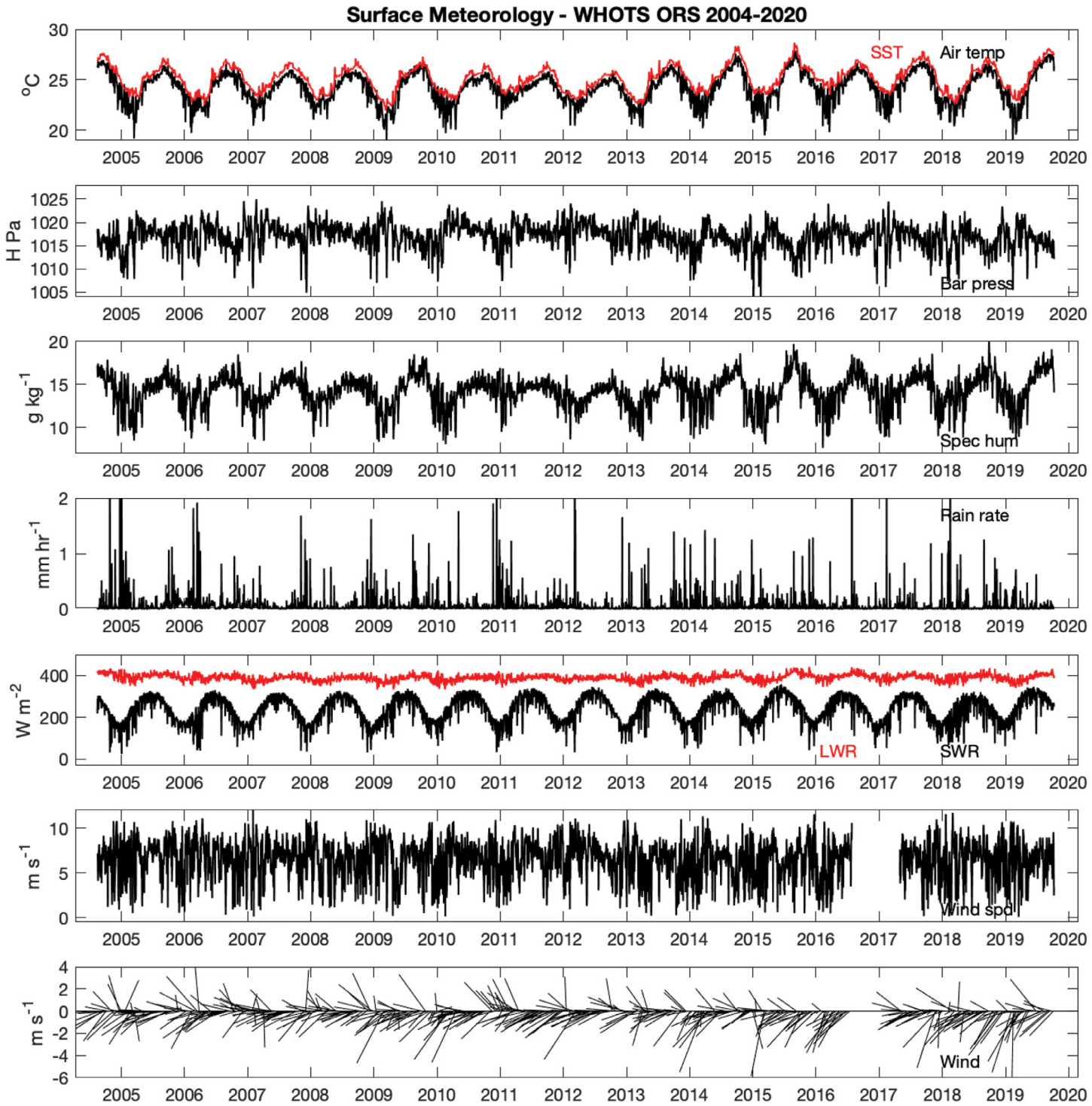

Fig. ES1. Daily averaged surface meteorology as observed at WHOTS. The wind vectors (toward) are subsampled every 5 days. A gap in wind data in 2016/17 resulted from loss of direction data in the raw 1-min time series. (from top to bottom) Sea surface temperature (SST), air temperature, barometric pressure, specific humidity, rain rate, incoming longwave radiation (LWR) and incoming shortwave radiation (SWR), wind speed, and vector wind, respectively.

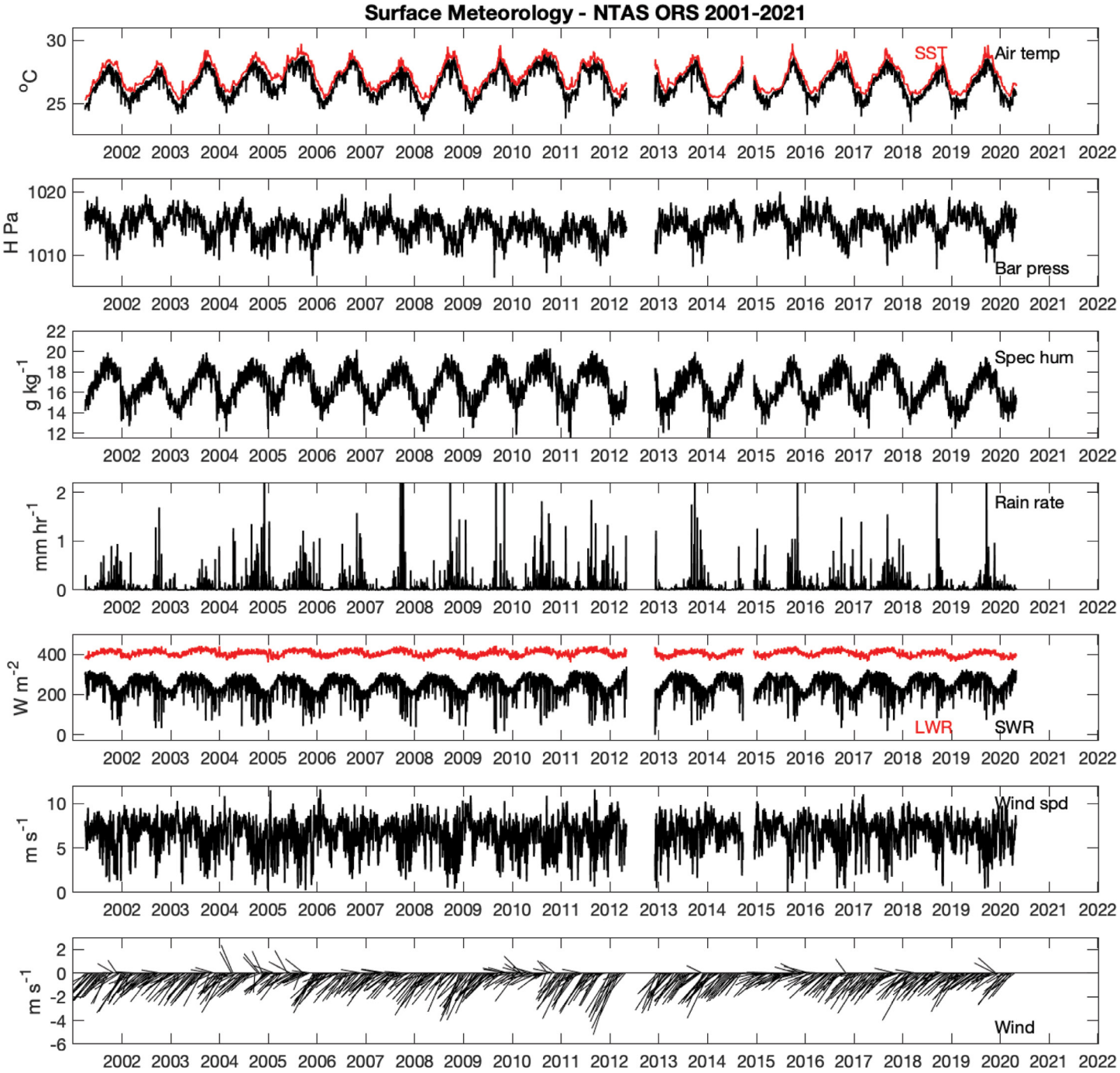

Fig. ES2. Daily averaged surface meteorology as observed at NTAS. The wind vectors (toward) are subsampled every 5 days. Gaps in the data resulted from breaks in the mooring. (from top to bottom) SST, air temperature, barometric pressure, specific humidity, rain rate, incoming LWR and incoming SWR, wind speed, and vector wind, respectively. Note the rain-rate scale is the same as that of WHOTS.

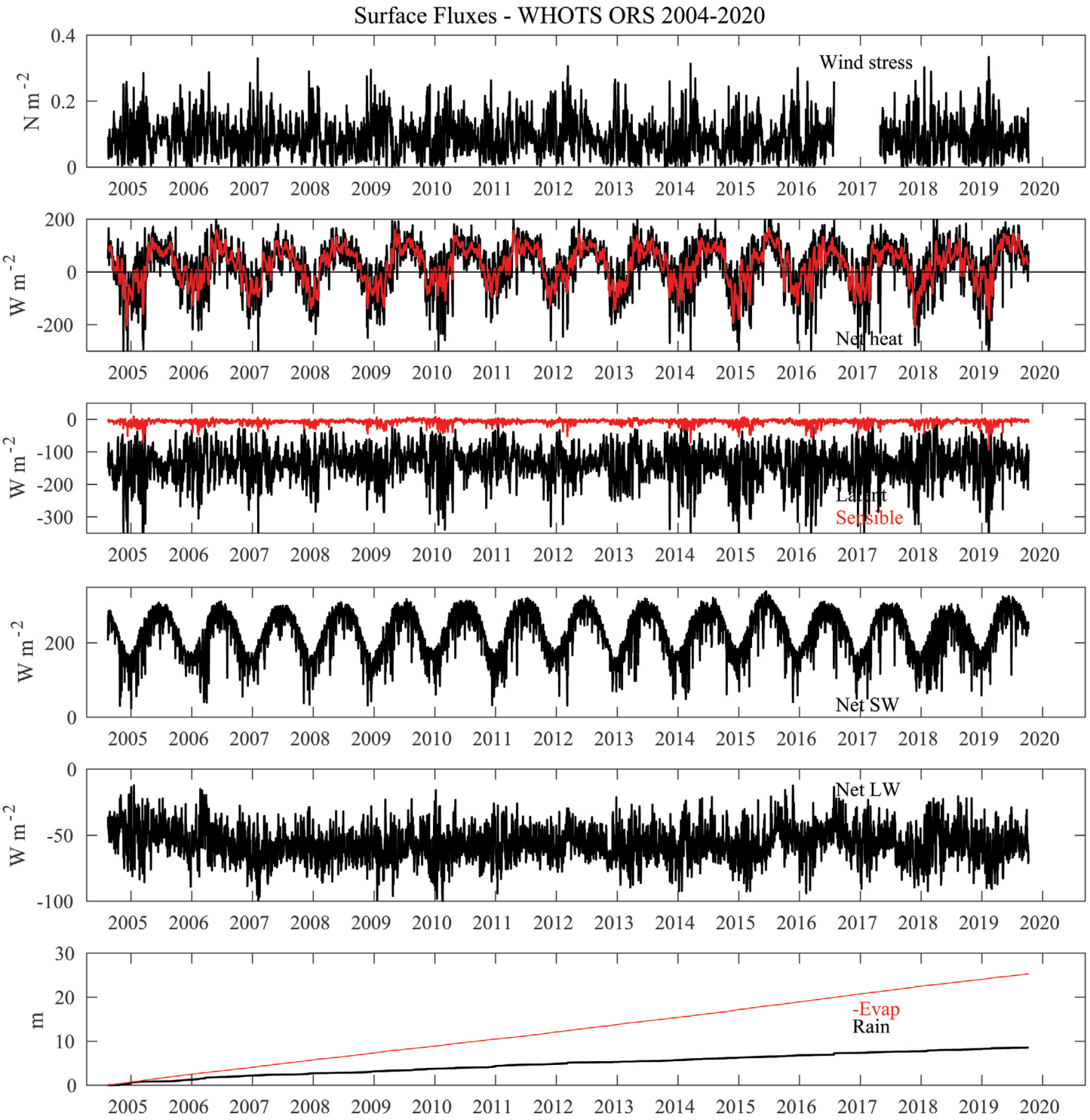

Fig. ES3. Daily averaged air–sea fluxes as observed at WHOTS. (from top to bottom) The magnitude of the wind stress, net air–sea heat flux (black: daily; red: 10-day running mean), latent (black) and sensible (red) heat flux, net shortwave radiation, net longwave radiation, and an overplot of cumulative rainfall and evaporation × –1, respectively. To compute sensible and latent heat flux, the available wind speed data were used.

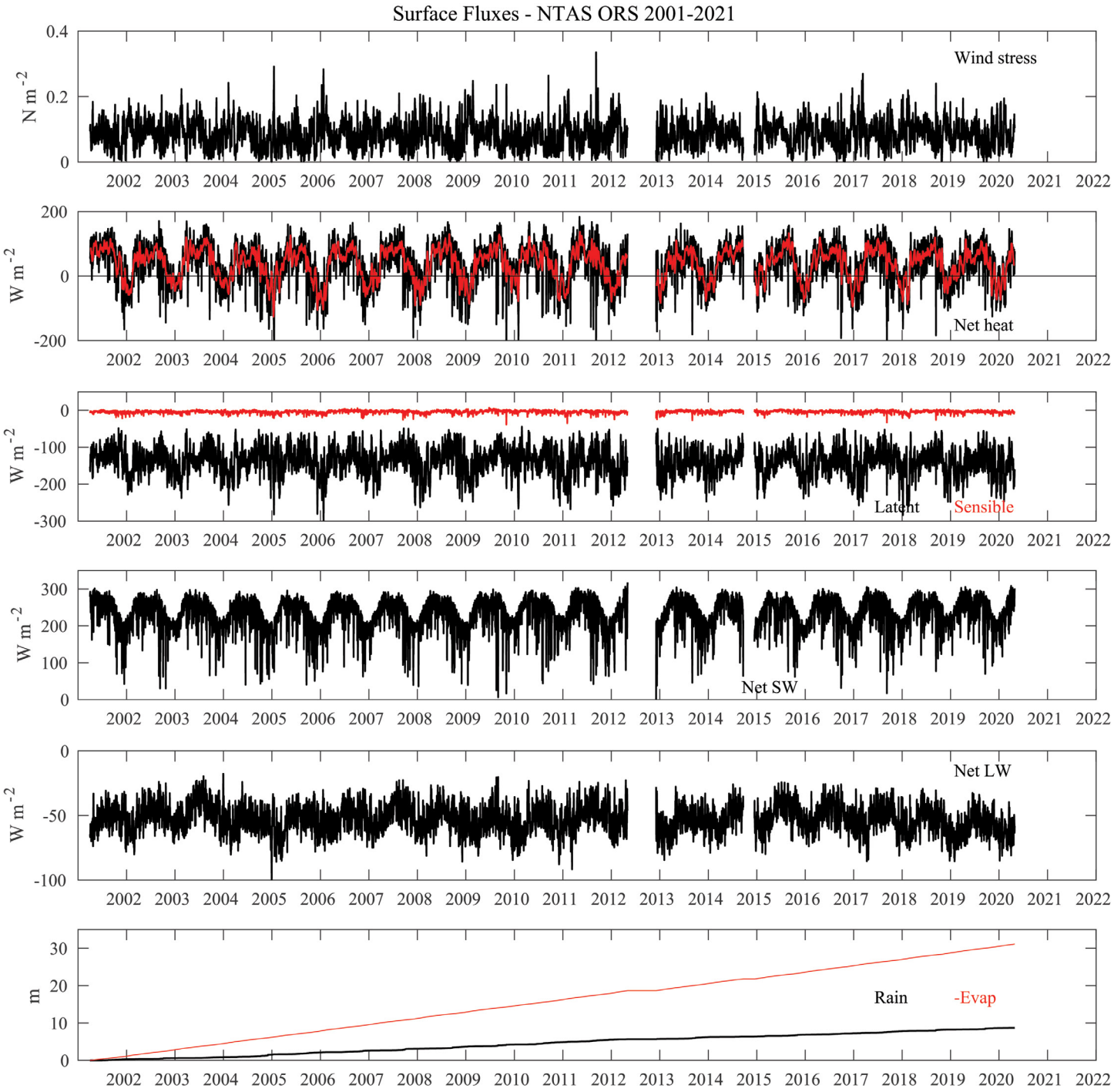

Fig. ES4. Daily averaged air–sea fluxes as observed at NTAS. Gaps in the data resulted from breaks in the mooring. (from top to bottom) The magnitude of the wind stress, net air–sea heat flux (black: daily; red: 10-day running mean), latent (black) and sensible (red) heat flux, net shortwave radiation, net longwave radiation, and an overplot of cumulative rainfall and evaporation × –1, respectively.