

High-resolution air-sea coupling impact on two heavy precipitation events in the Western Mediterranean

Romain Rainaud, Cindy Lebeaupin Brossier, Véronique Ducrocq, Hervé Giordani

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revision

Supporting information

14-OCT-2012 16UT

ARCO-LR

CPLOA-LR

SSTHR-LR

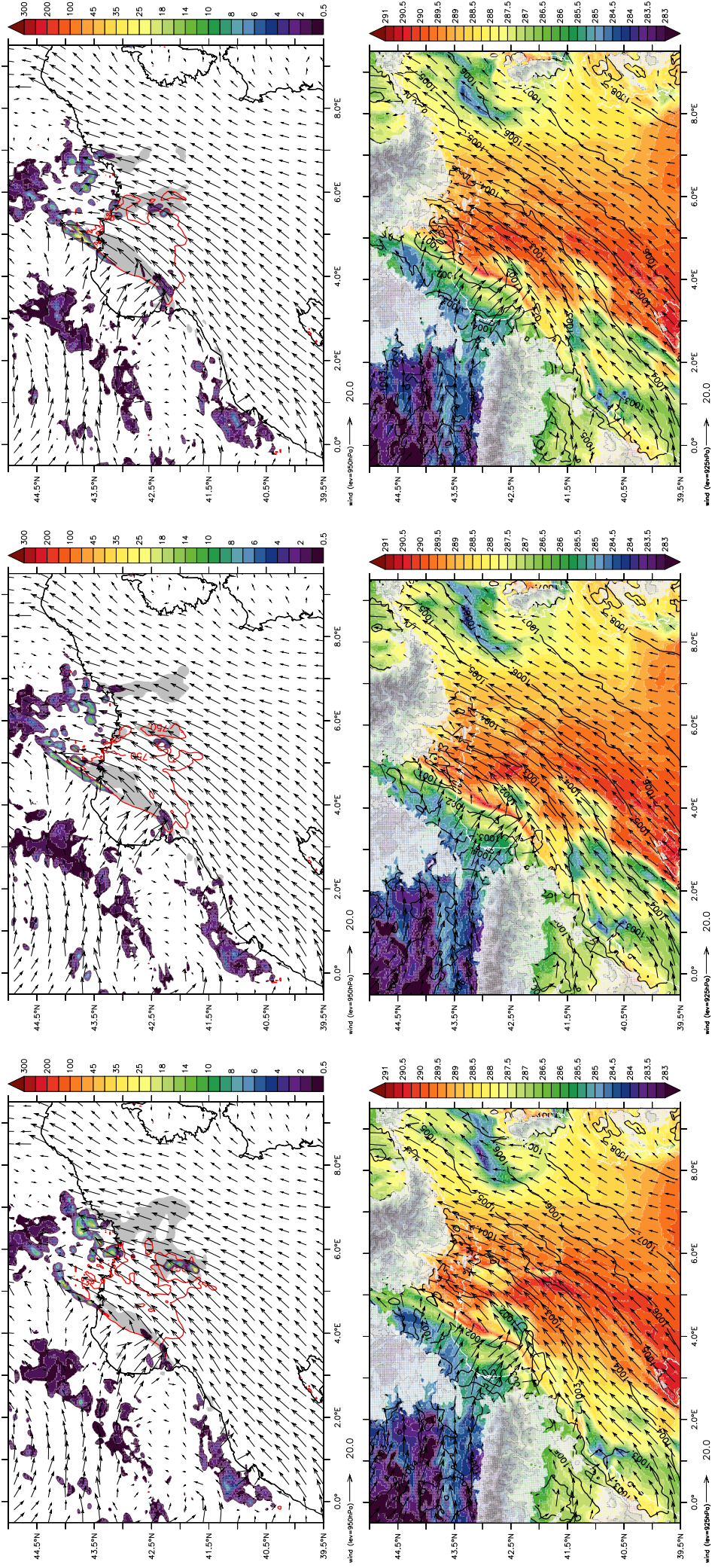


FIGURE S1 – IOP13, 14 Oct 2012 16UT : [top panels] Radar reflectivities (colors, in mm h⁻¹ equivalent), Integrated Water Vapor over 28 kg m⁻² (grey area), wind at 950hPa (arrows, in m s⁻¹) and CAPE over 750 J kg⁻¹ (red contour), and, [bottom panels] θ'_w at 925 hPa (colors, in K), wind at 925 hPa (arrows, in m s⁻¹) and Mean Sea Level Pressure (hPa, black contours), in ARCO-LR, CPLOA-LR and SSTHR-LR.

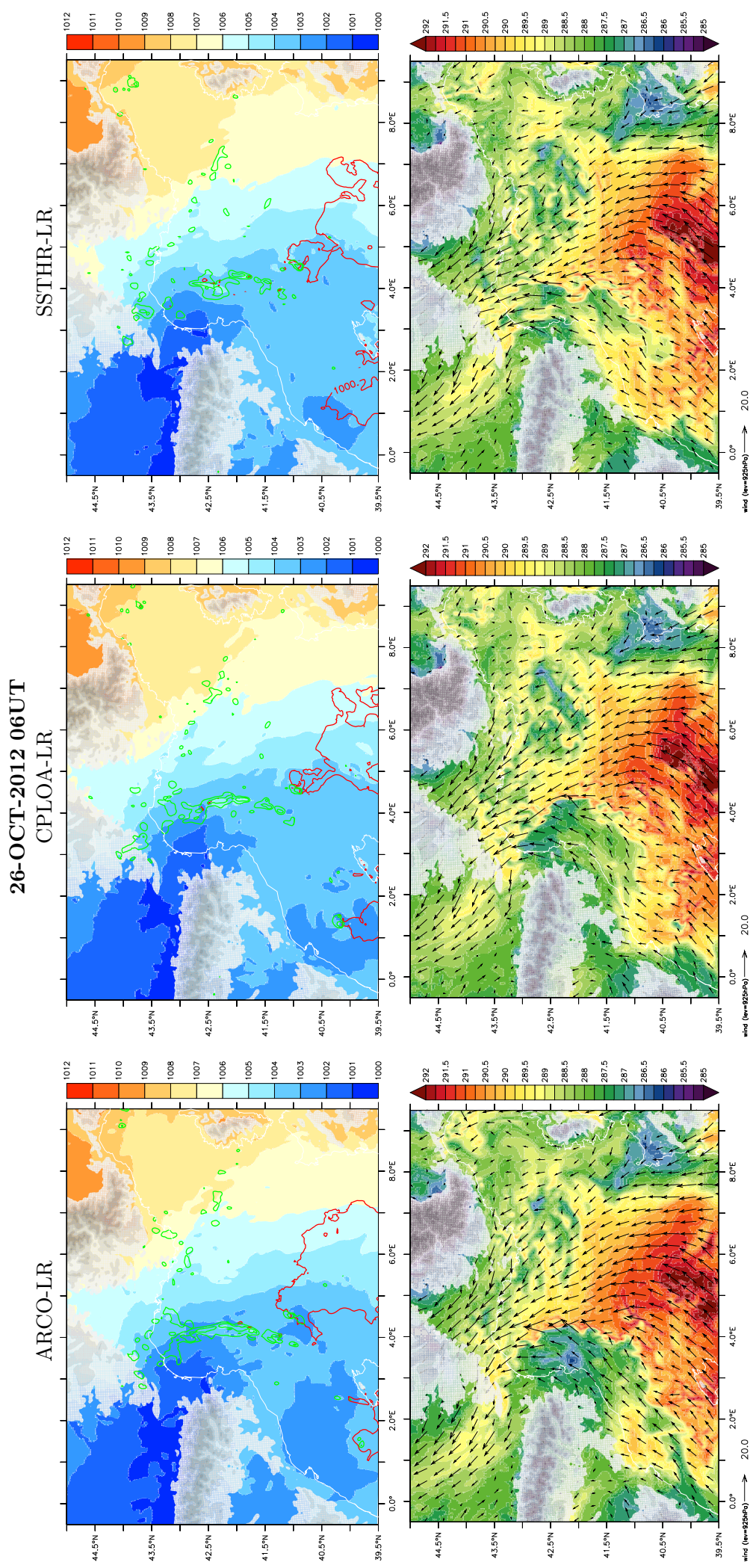


FIGURE S2 – IOP16a, 26 Oct 2012 06UT : [top panels] Mean Sea Level Pressure (colors, in hPa), Radar reflectivities (green contours at 5, 20, and 100 mm h⁻¹ equivalent) and CAPE over 1000 J kg⁻¹ (red contour), and, [bottom panels] θ'_w at 925 hPa (color, in K) and wind at 925hPa (arrows, m.s⁻¹), in ARCO-LR, CPLOA-LR and SSTHR-LR.

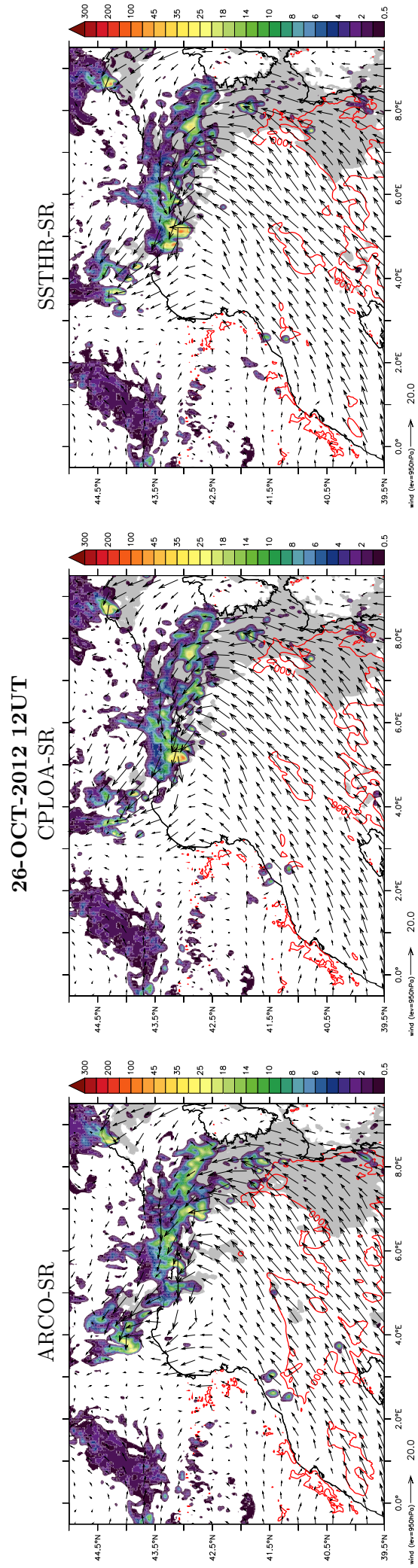


FIGURE S3 – IOP16a, 26 Oct 2012 12UT : Radar reflectivities (colors, in mm h⁻¹ equivalent), Integrated Water Vapor over 32 kg m⁻² (grey area), wind at 950 hPa (arrows, in m s⁻¹) and CAPE over 1000 J kg⁻¹ (red contour) in ARCO-SR, CPLOA-SR and SSTHR-SR.

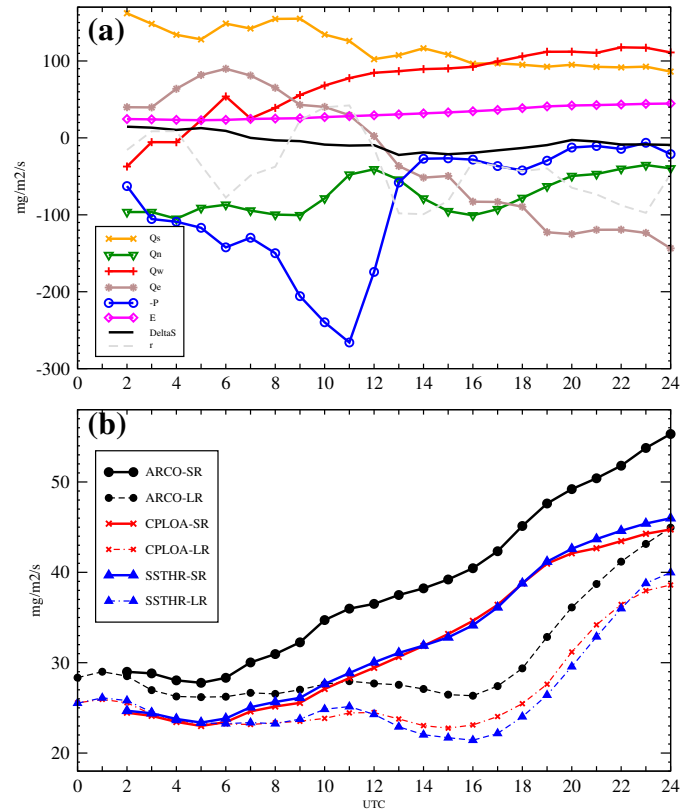


FIGURE S4 – (a) Water budget components ($\text{mg m}^{-2} \text{s}^{-1}$) in CPLOA for IOP16a (26 October 2012, forecast basis : 26 October 00UTC) for the low levels (0 - ~ 500 m) [see the box in Fig. 10]. (b) Evaporation contribution ($\text{mg m}^{-2} \text{s}^{-1}$) to water budget for 26 October 2012 in ARCO, CPLOA, and SSTHR for SR forecast (forecast basis : 26 October 00UTC) and LR forecast (forecast basis : 25 October 00UTC).

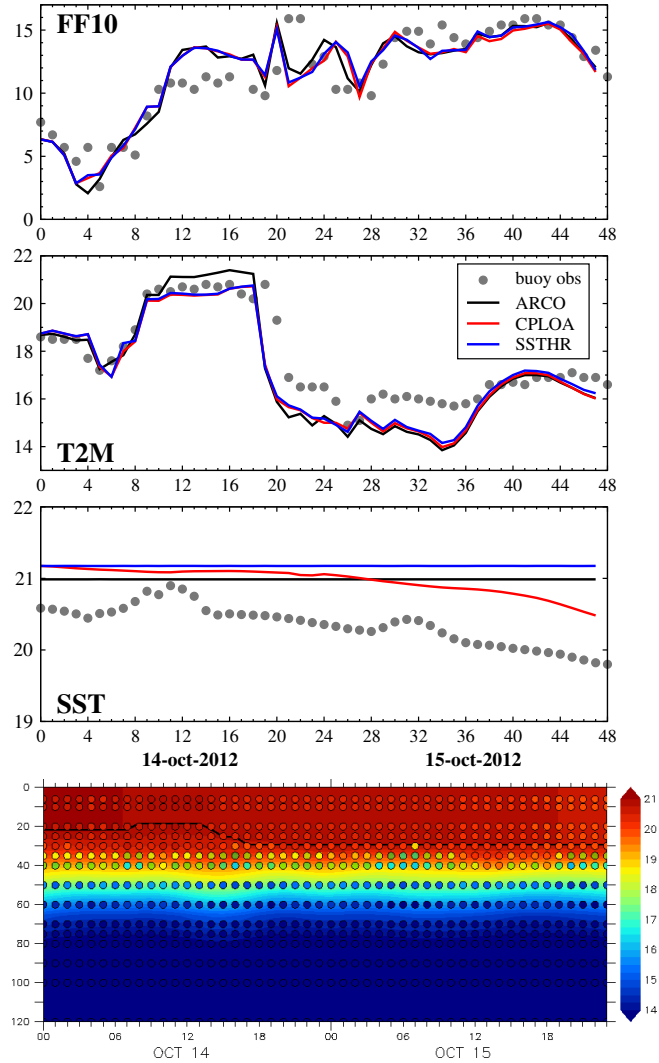


FIGURE S5 – IOP13 phase 3 (14-15 October 2012) at the LION buoy : [*top panels*] Time-series of 10m-wind speed (FF10, m s^{-1}), 2m-temperature (T2M, $^{\circ}\text{C}$) and SST ($^{\circ}\text{C}$) for ARCO (black), CPLOA (red) and SSTHR (blue) (forecast basis : 14 October 2012 00UT. Observations are the grey circles. [*bottom panel*] Time-serie of the ocean temperature ($^{\circ}\text{C}$) profile simulated by CPLOA. The black line indicates the simulated MLD from a density criteria. The circles are observations from the bathymetric thermistance chain.

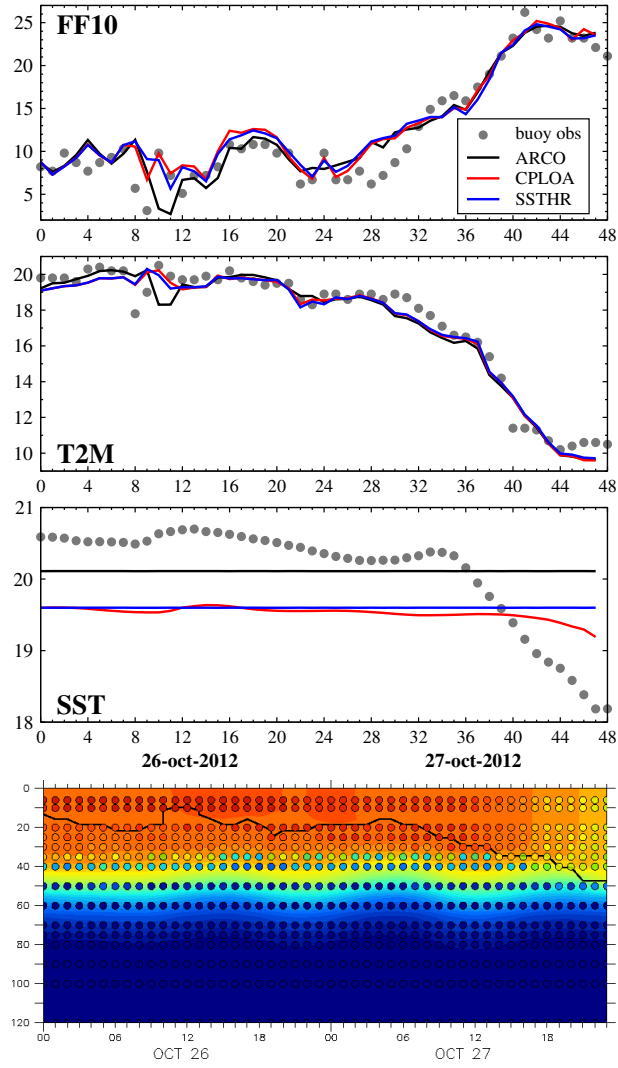


FIGURE S6 – Same as Figure S5 but for IOP16a (26-27 October 2012) (forecast basis : 26 October 2012 00UT).