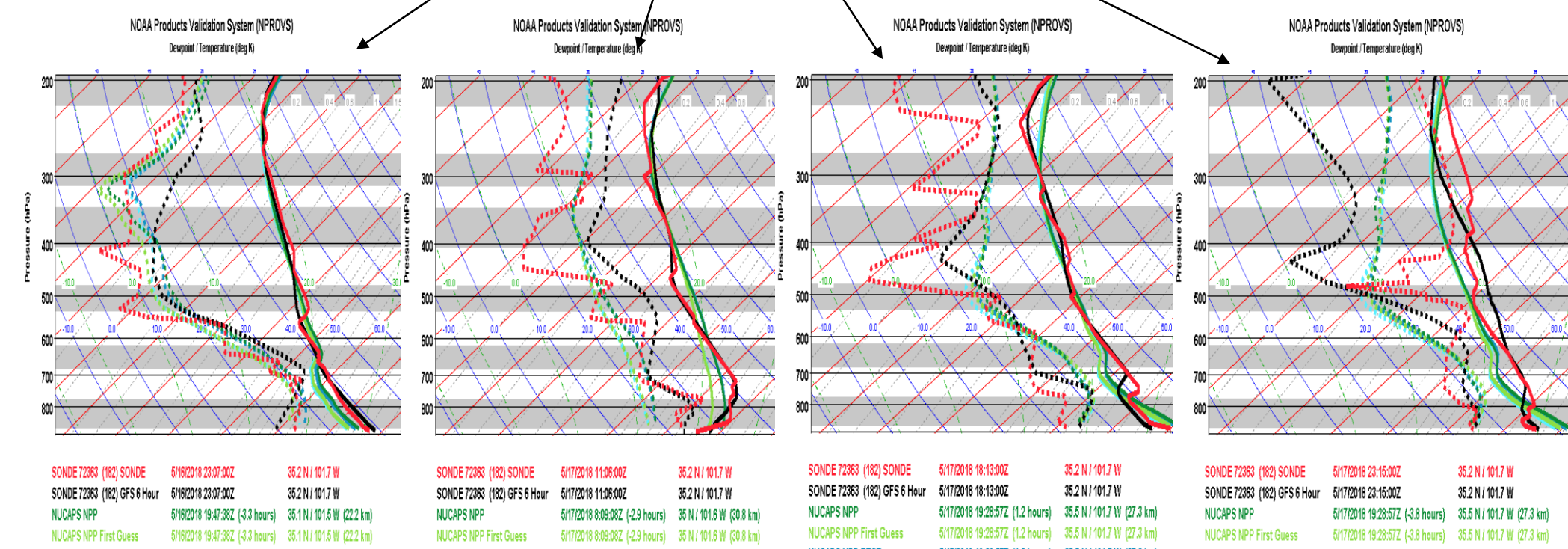
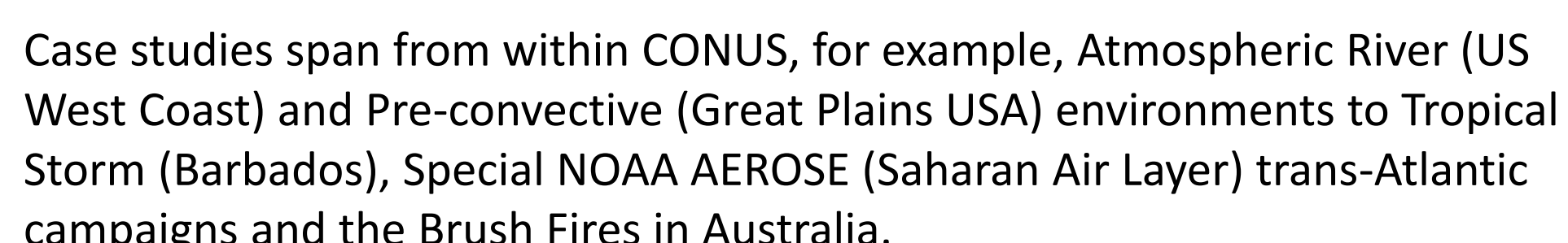
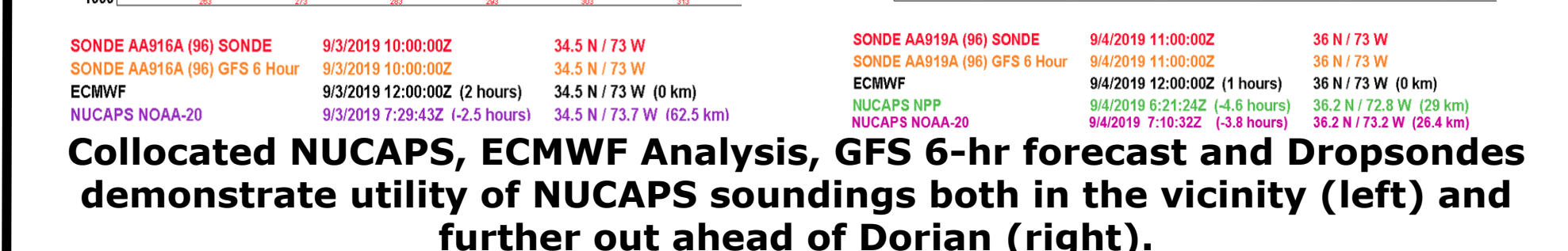
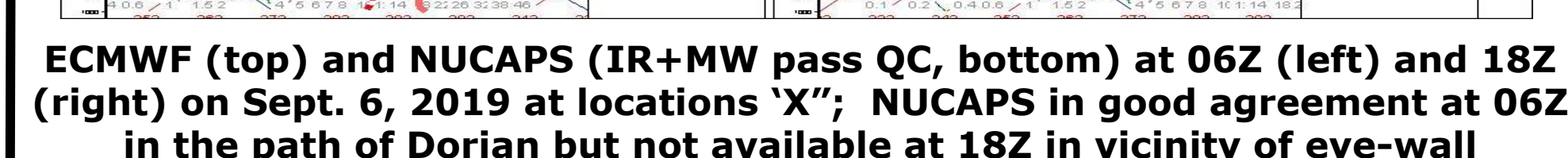
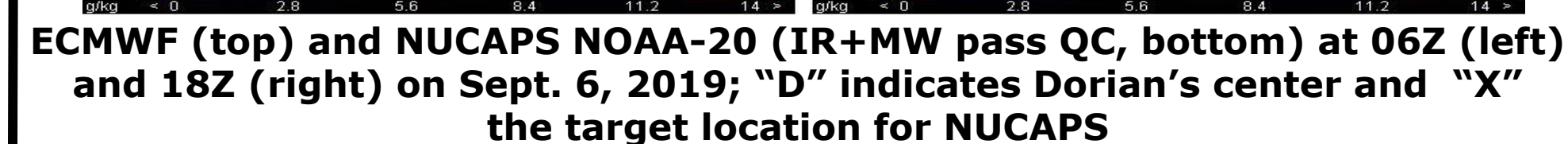




Abstract

JPSS - HWTB

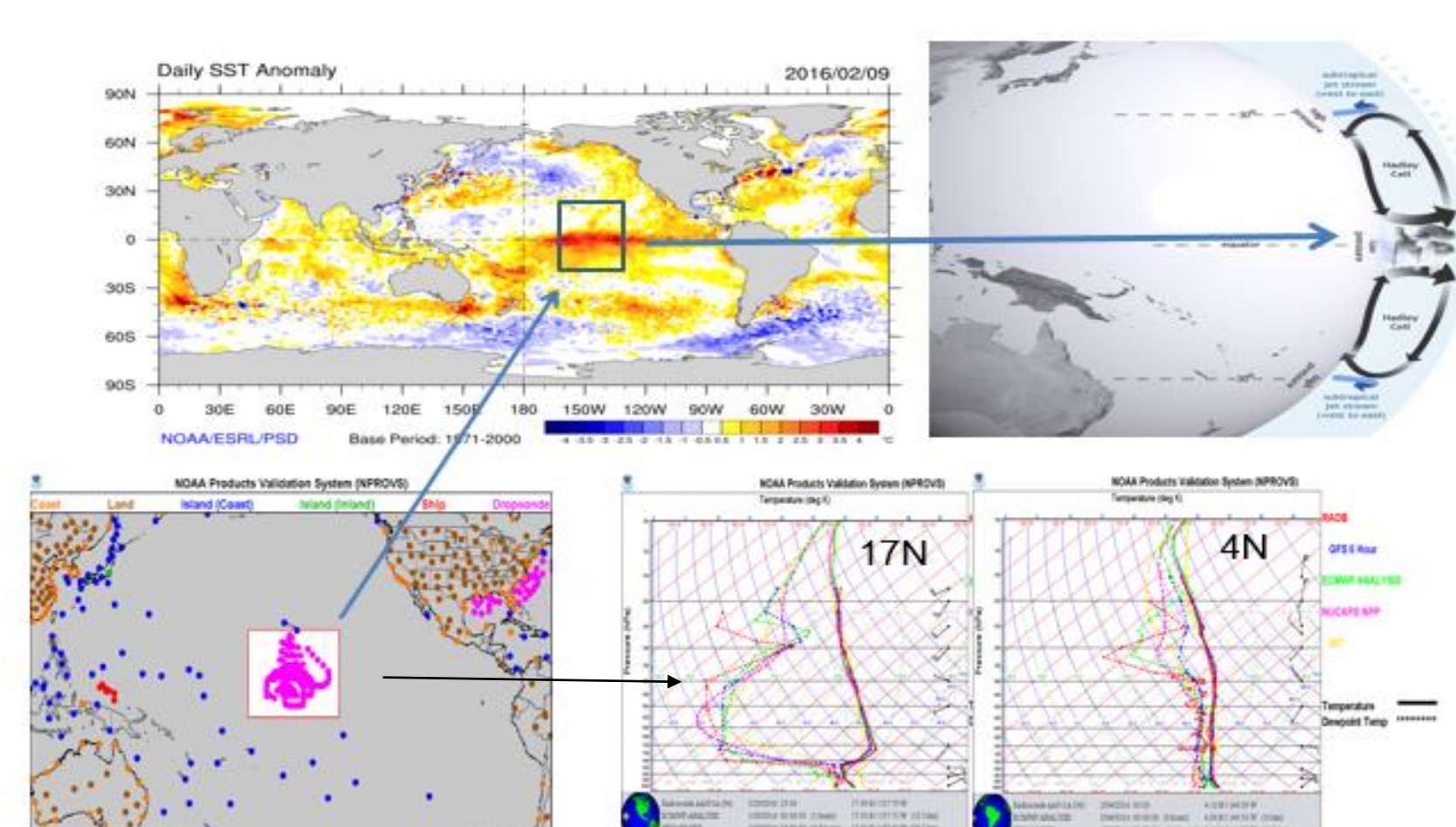
Hurricane Dorian



Collocations of NUCAPS SNPP with Amarillo Radiosonde from late 5/16 through 5/17 confirm NUCAPS sensitivity to increasing atmospheric temperature and moisture consistent with the radiosonde; notice the non-synoptic 18Z radiosonde!

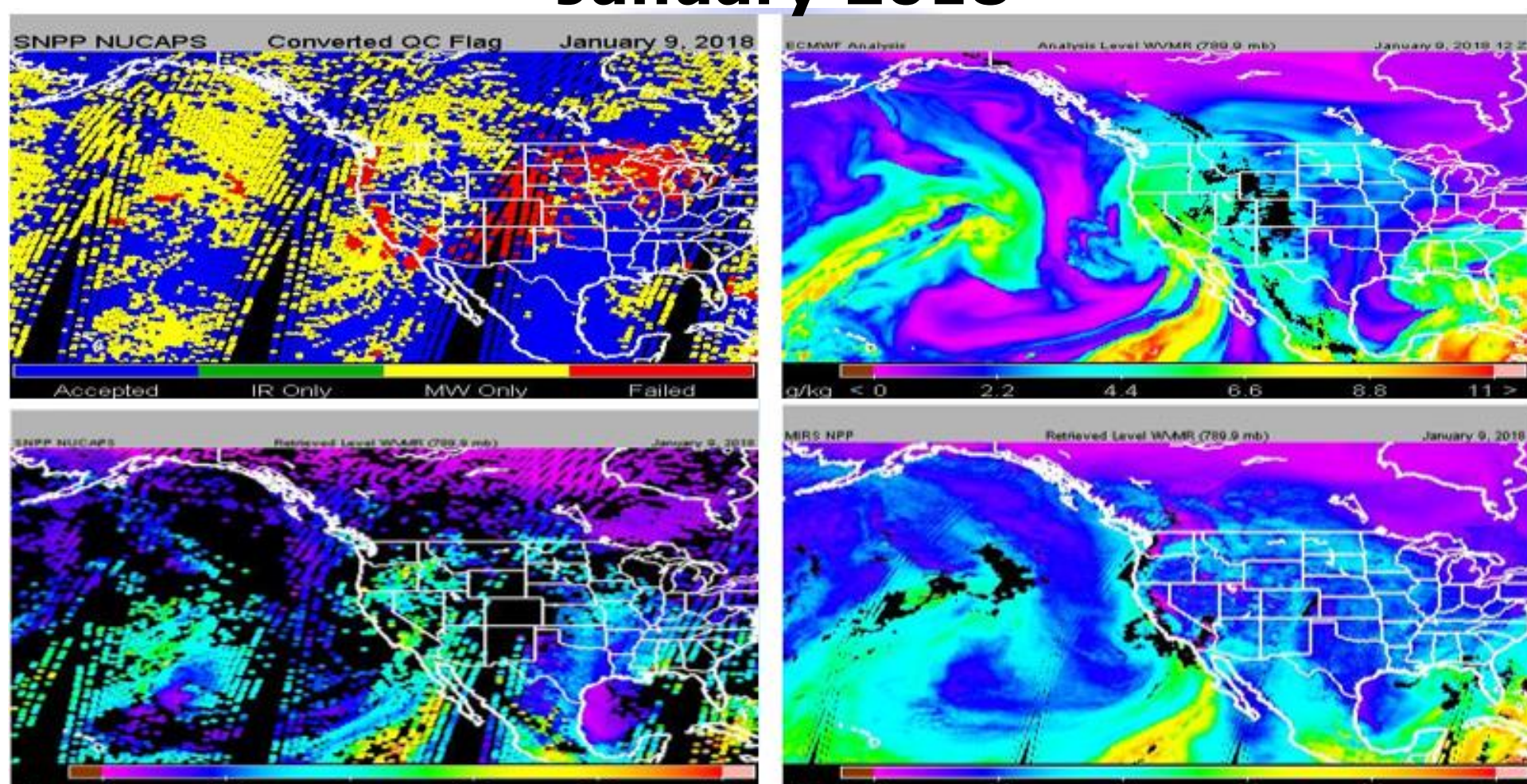
Atmospheric River

AWIPS-2 El-Nino Rapid Response 2016

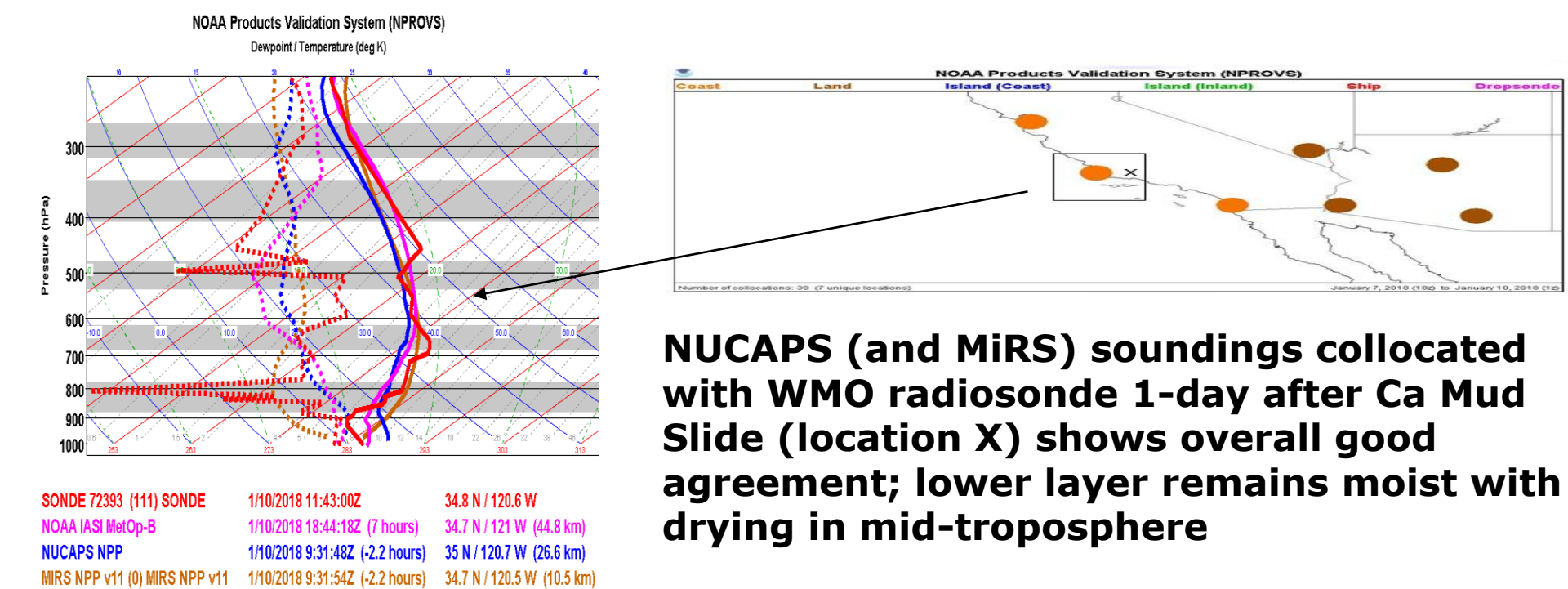


NUCAPS vertical profiles (lower right) compared to special targeted radiosondes (low left) captures circulation (Hadley cell) regimes (top) of the central tropical/sub-tropical region

January 2018

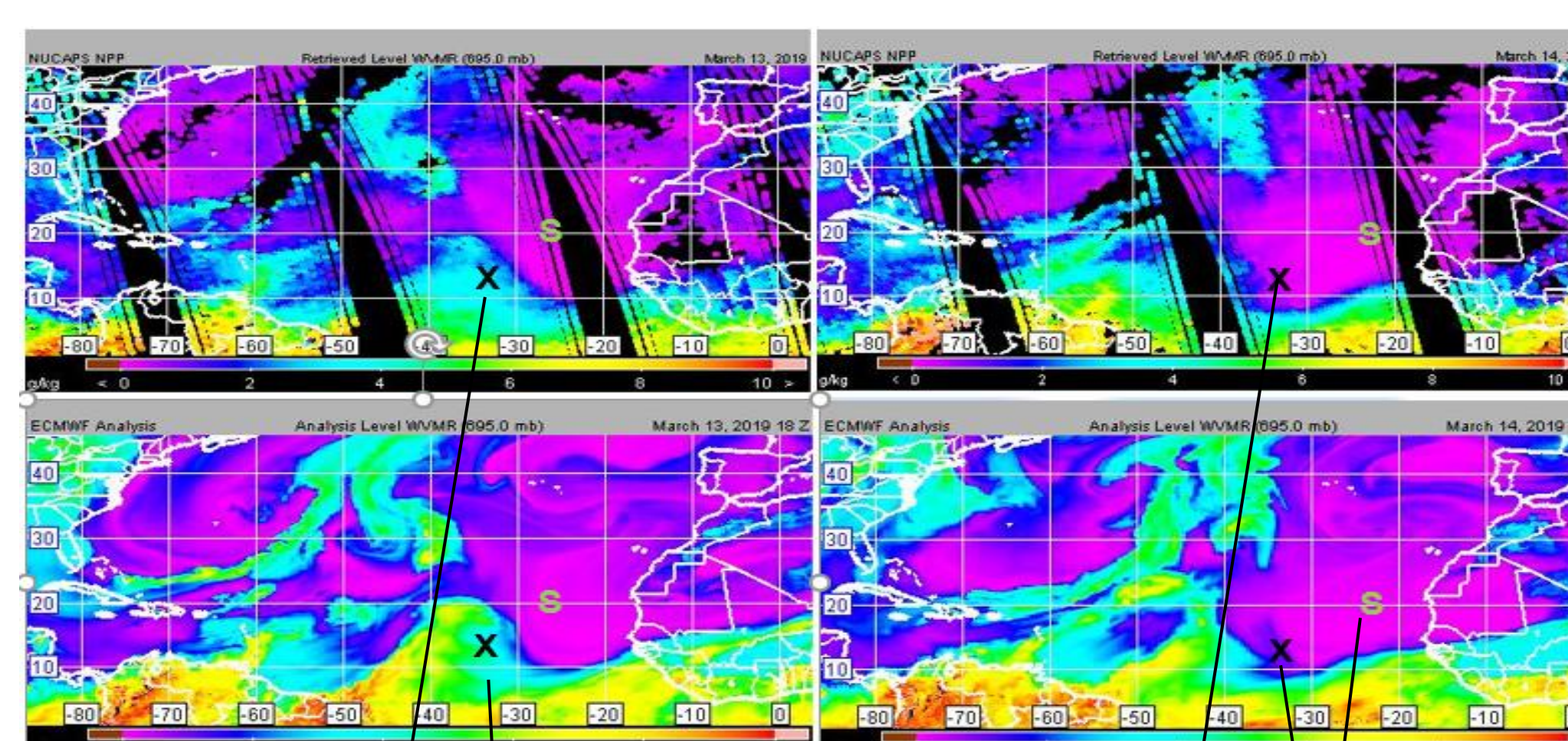


NUCAPS (v2, low left) 800 hPa Atmospheric River moisture pattern compares favorably to ECMWF Analysis (up right) and NOAA operational MiRS (low right). The upper left denotes successful NUCAPS IR+MW (blue) that are plotted below; yellow and red are regions where IR+MW failed.

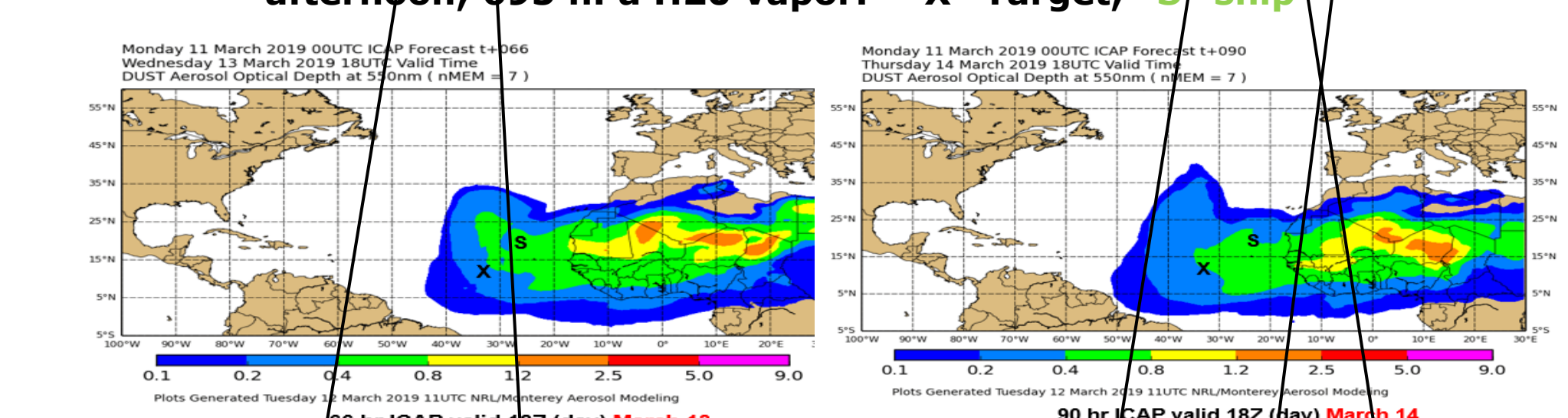


NUCAPS (and MiRS) soundings collocated with WMO radiosonde 1-day after Ca Mud Slide (location X) shows overall good agreement; lower layer remains moist with drying in mid-troposphere

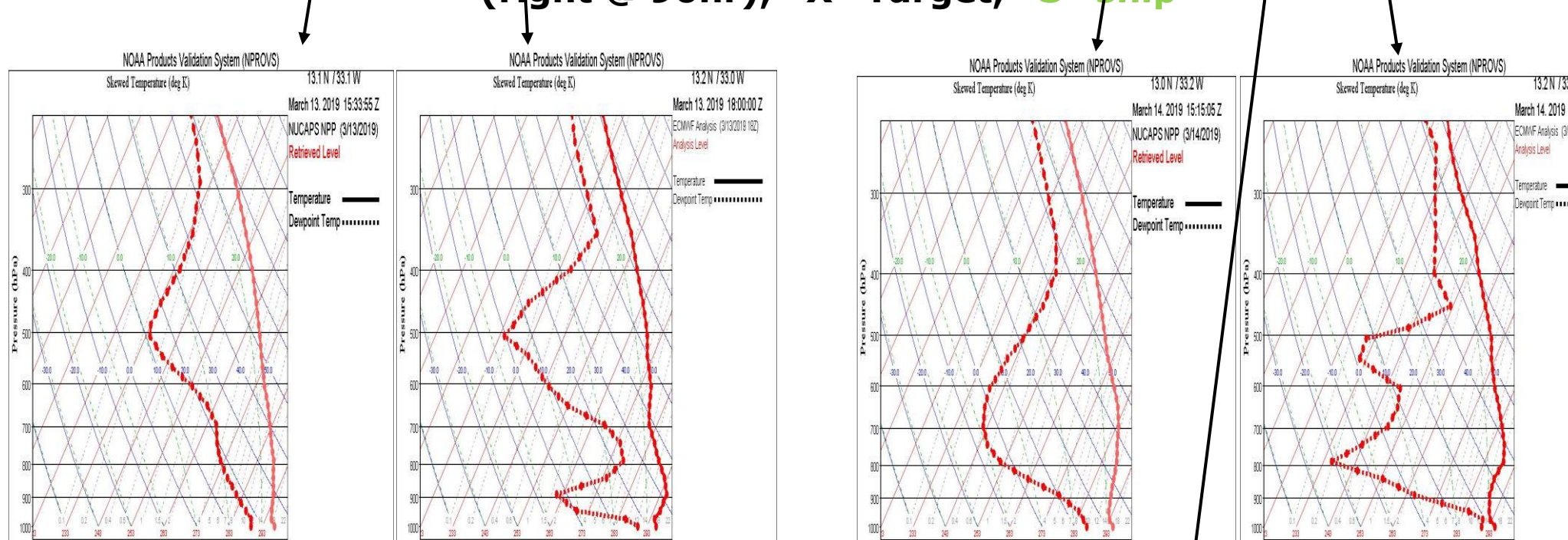
AEROSE (2019) / SAL



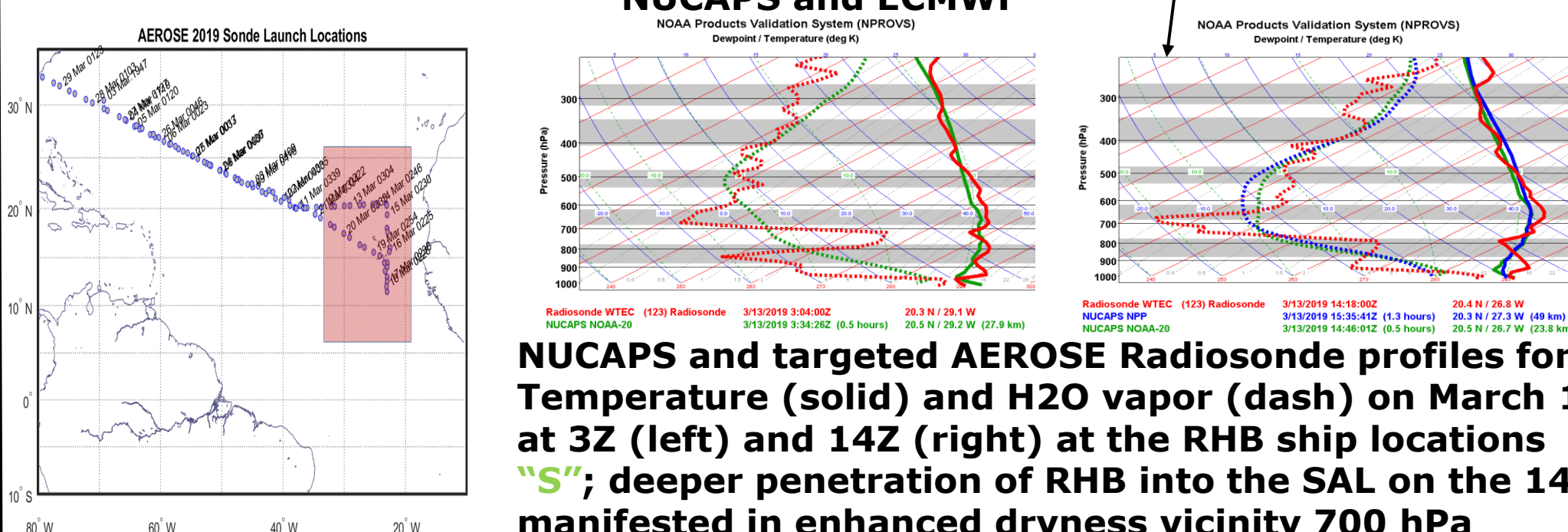
NUCAPS (Top) and ECMWF Analysis (Bottom) for March 13, 14, mid-afternoon: 695 hPa H₂O vapor: "X" Target: "S" shin



ICAP Dust AOD forecast valid at 18Z on March 13 (left @ 66hr) and March 14 (right @ 90hr): "X" Target: "S" ship



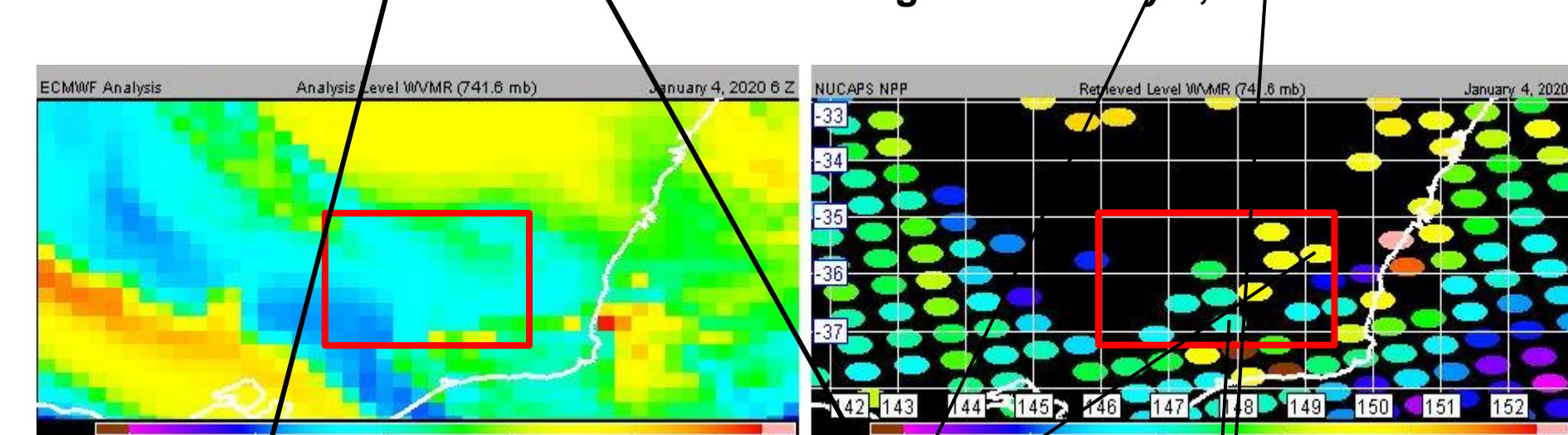
NUCAPS and ECMWF Analysis Temperature (solid) and H₂O vapor (dash) on March 13 (left) and March 14 (right) at the location "X"; penetration into SAL manifested in enhanced dry subsidence layer vicinity of 700 hPa in both NUCAPS and ECMWF



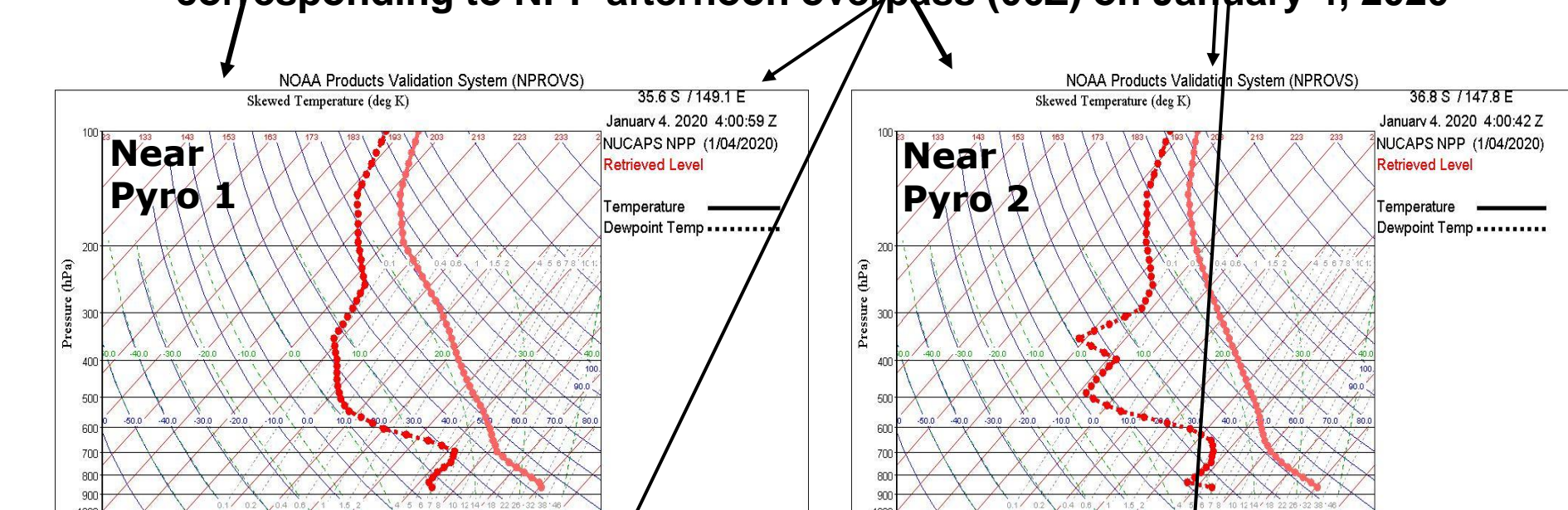
NUCAPS and targeted AEROS Radiosonde profiles for Temperature (solid) and H₂O vapor (dash) on March 1 at 3Z (left) and 14Z (right) at the RHB ship locations "S"; deeper penetration of RHB into the SAL on the 14th manifested in enhanced dryness vicinity 700 hPa

Australia Brush Fires

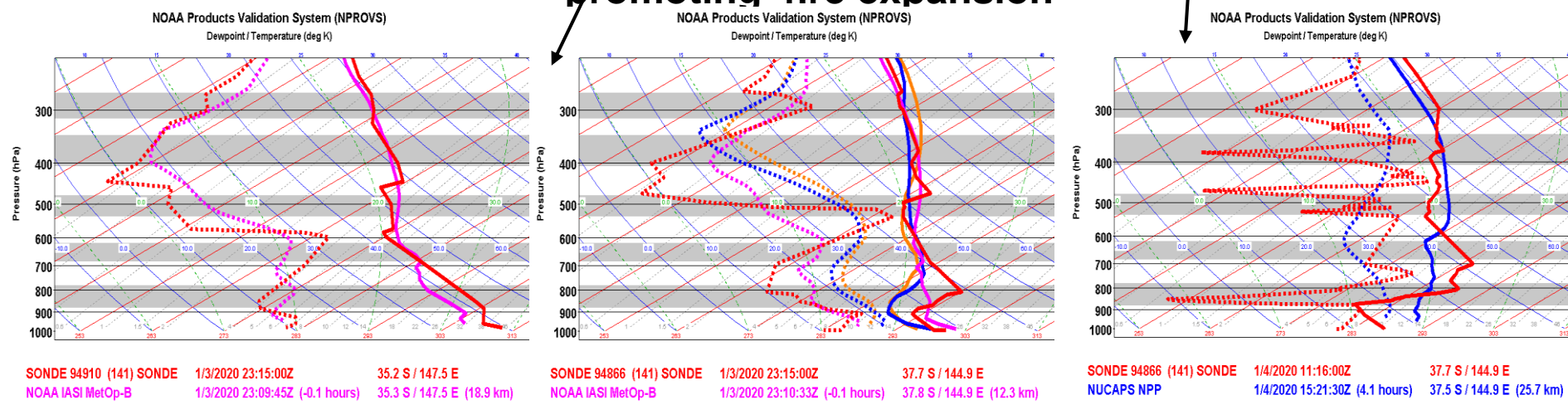
Figure 1 consists of two panels. The left panel is a satellite map of Australia with a white box highlighting the fire eruption zone in the south-east. A red dot marks Melbourne, and a red dot marks the fire eruption zone. A yellow dot marks the 'Pryo' target location. The right panel is a map of Australia showing the locations of radiosonde stations. The map is divided into regions: Coast, Land, Island (Coast), Island (Inland), Ship, and Dropsonde. The map shows the locations of radiosonde stations (blue dots) and the locations of radiosonde soundings (orange dots). A white box highlights the fire eruption zone. A yellow dot marks the 'Pryo' target location. The map includes a legend for the NOAA Products Validation System (NPROVS) and a scale bar.



ECMWF and NUCAPS (IR+MW pass QC) 750hPa H2O vapor across fire zone corresponding to NPP afternoon overpass (06Z) on January 4, 2020



NUCAPS NPP soundings closest to "Pyro" targets suggesting instability promoting fire expansion



NUCAPS NOAA-20, NPP and/or MetOp-B (pass QC) closest to Radiosondes near the targets zone and 06Z on Jan 4, 2020:

References

- Reale, A., B. Sun, F. Tilley, and M. Petty, 2012: The NOAA Products Validation System (NPROVS). *Journal of Atmospheric and Oceanic Technology*, 29, DOI:10.1175/JTECH-D-11-00072.1.
- Nalli, N., and Coauthors, 2011: Multi-year observations of the tropical Atlantic atmosphere: Multidisciplinary applications of the NOAA Aerosols and Ocean Science Expeditions (AEROSE). *Bull. Amer. Meteor. Soc.*, 92, 765–789, doi:10.1175/2011BAMS2997.1



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College Park, MD
(corresponding author: Tony.reale@noaa.gov)**