

ASCAT Winds in GRIB Format

Raw ASCAT data are collected from the satellites and analyzed by KNMI, who in turn share this data worldwide in a scientific format called NetCDF (network common data format). A tremendous amount of model and measurement data in meteorology and oceanography are shared this way among scientists, but this format is not readable by common navigation and weather apps for mariners; these apps need GRIB format, a format designed by the WMO specifically to present digital weather data to mariners.

On the U.S. side, the OSWT analyzes and then converts this data to images and distributes them as discussed. For a few years, NCEP converted the NetCDF data to GRIB format and made it available to the public, but that did not last long, likely traceable (sadly enough) to the fact that not many mariners used it.

At present, to my knowledge, the only source of ASCAT winds in GRIB format are the LuckGrib apps (Mac or iOS) and the performance navigation app Expedition, both of which do the conversion to GRIB for us. Figure 4.2-10 shows the value of digital ASCAT winds. The LuckGrib data are based on the ASCAT coastal data with effective resolution of 14 km, compared to the 25 km of the OSWT graphic data.

Beside their own excellent display features, the LuckGrib files and the Expedition files can be exported to view in other apps such as qtVlm. Figure 4.2-11 shows ASCAT data in GRIB format in LuckGrib, Expedition, and qtVlm compared to the graphic version of the data.

The GRIB format offers a precise digital presentation of wind that is much easier to read than the graphic images. Comparing digital ASCAT data with a corresponding model analysis is a quick and accurate way to evaluate the model output. Model forecast times can be interpolated to the minute to match the ASCAT pass times.

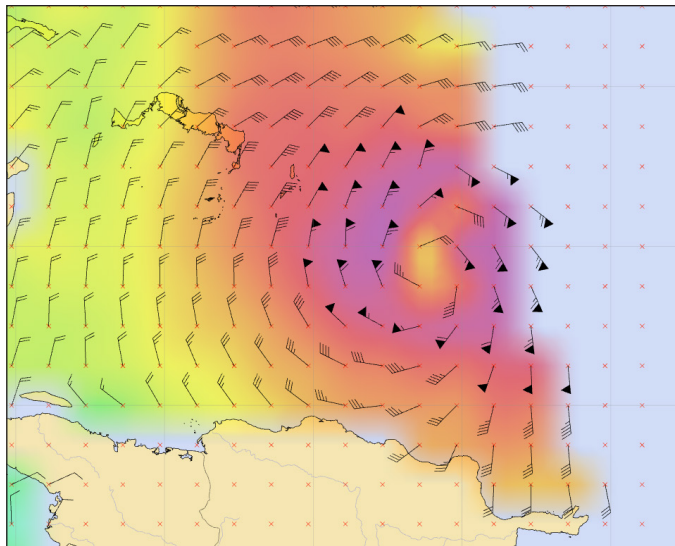


Figure 4.2-10. ASCAT wind measurements at 0132z on Sept. 22, 2017 (Hurricane Maria) displayed in GRIB format using LuckGrib.

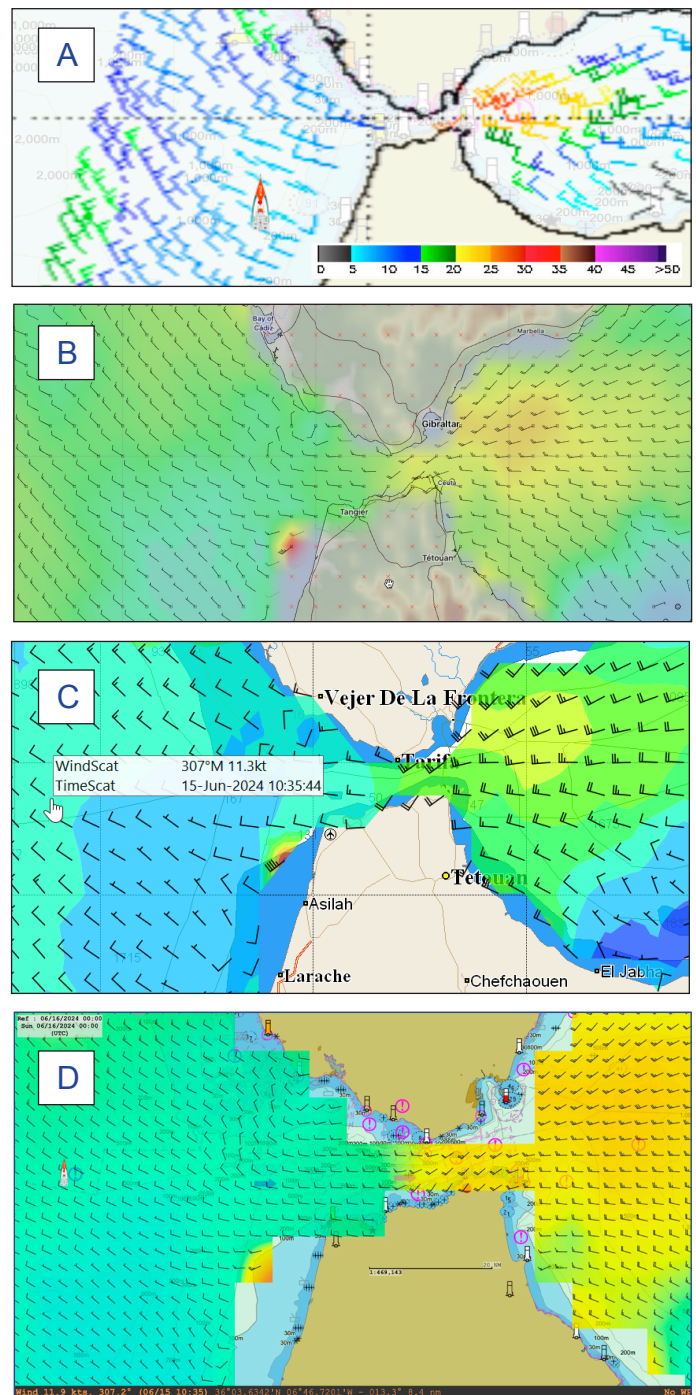


Figure 4.2-11. ASCAT data. A. Graphic version updated automatically in qtVlm weather overlays option. B. Grib version downloaded and displayed in LuckGrib. C. Grib version downloaded and displayed in Expedition. D. Grib version exported from LuckGrib and loaded into qtVlm. We see much more detail in the GRIB compared to graphic versions, such as the funneling of the wind entering the Strait of Gibraltar that leads to a notable backing of the wind along the south side of strait. The fanning out of the wind entering the Mediterranean is visible in the graphic and digital data. The indicated strong wind area SE of the entrance is a misleading display of an erroneous one point report of 42 kts of wind. The displays enhance this as they interpolate between points.