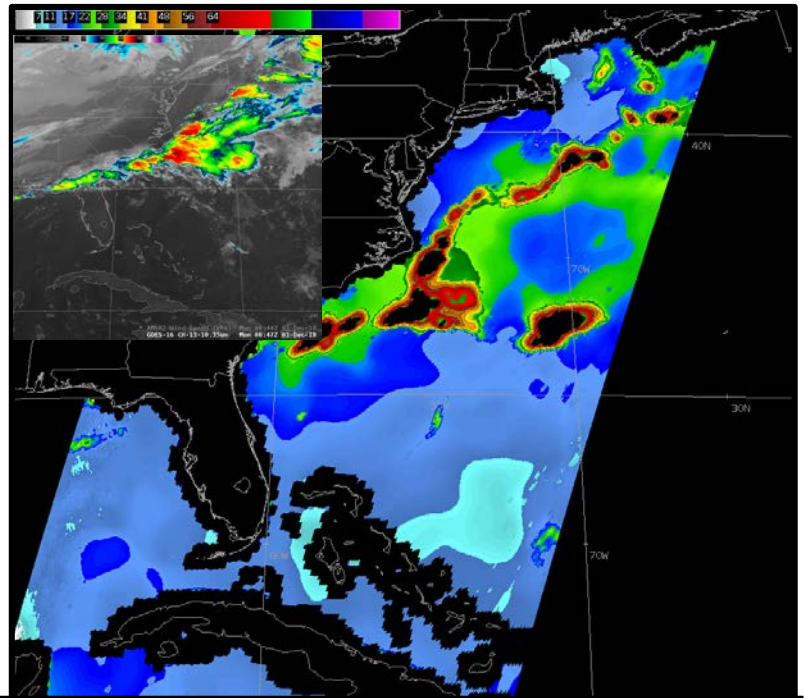


### Why are GCOM AMSR2 Winds Important?

Wind information over open waters where observations are scarce is critical for shipping concerns. Sustained strong winds can generate dangerous waves. GCOM is a polar-orbiting satellite that uses microwave data from AMSR-2 (Advanced Microwave Scanning Radiometer 2) to infer wind speeds. Microwave emissions are detected with a scanning antenna that rotates once per 1.5 seconds, measuring a swath 1450 km wide. Sea-surface winds are computed using the 36.5 GHz channel. The image at right shows a large region of strong surface winds (in red) over the western Atlantic associated with a cold front.



GCOM AMSR-2 Sea-Surface Winds, 0644 UTC 03 December 2018  
(Inset: 10.3  $\mu$ m Clean Window IR Imagery from 0647 UTC)

### GCOM AMSR-2 Sea Surface Wind Observation Specifications

- ✓ Coverage over oceans and Great Lakes
- ✓ Wind speeds from 0 to 30 m/s
- ✓ No data within 25 km of land or ice

### Impact on Operations

**Primary Application:** GCOM AMSR-2 winds are an important ground truth in regions where ship and buoy information is scarce.

**Data provider:** JAXA, the Japanese Aerospace Agency, operates the GCOM satellite and provides the AMSR-2 products to NOAA.

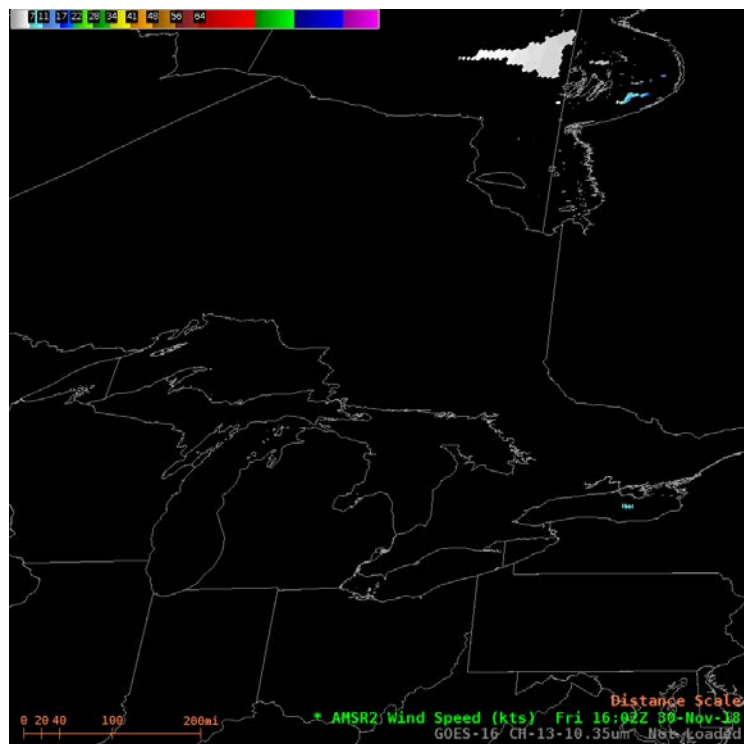
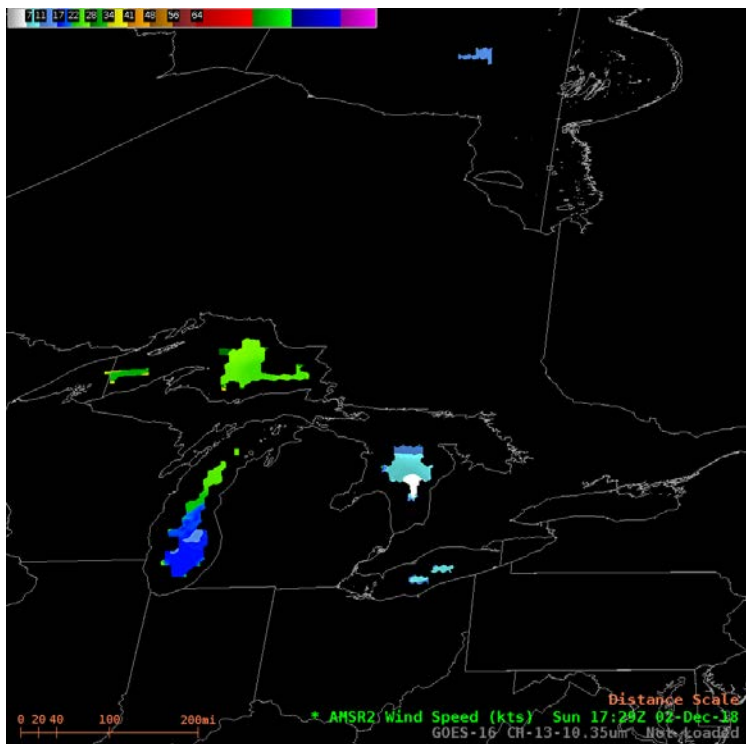
**Wind Speeds with Convection:** Sea Foam and surface waves both influence the microwave signal used to infer wind speeds. Heavy convective rain, as above over the western Atlantic, can affect the wind signal.

### Resources

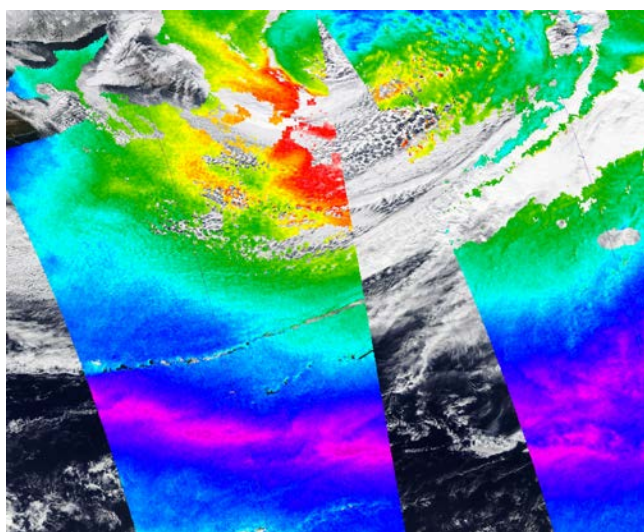
NOAA STAR  
[Sea Surface Wind Speed ATBD](#)

[NASA Worldview GCOM AMSR-2 Winds](#)

Hyperlinks will not work in AWIPS, but they do in VLAB



GCOM AMSR-2 Winds from different orbital paths over the Great Lakes, late 2018. Data are commonly available over the wide parts of Lakes Superior, Huron and Michigan. Data are less common over Lake Erie, and rarer still over Lake Ontario (The orbit in the right figure viewed only Lake Ontario)



GCOM AMSR-2 Winds show a large region of 50-knot+ winds over the western Atlantic on 15 November 2018. Very large and damaging waves hit Tenerife in the Canary Islands several days after this image.

### Resources

#### Surface Winds from GCOM

NASA Worldview

[GCOM Winds](#)

NOAA OSPO

[GCOM Winds](#)

COMET Training

[The AMSR-2 instrument on GCOM](#)