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VIIRS Impact to Operational Nowcasts/Forecasts via User ... essments by NASA SPoRT

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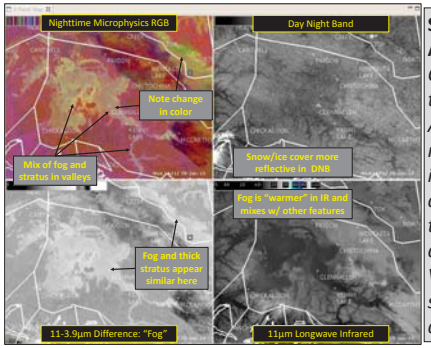

SPoRT Blog from Alaska, 31 Jan 2014, *Copper River Basin to the Northeast of Anchorage. Fog is more easily identified in NtMicro RGB compared to traditional 11-3.9µm difference. Variations in fog and stratus thickness are also more evident*

Overview

NASA/SPoRT is using VIIRS data to create single and multi-channe... RGB) products to address needs of NWS forecasters related to ... fog and cloud features that pose hazards to the aviation con... Nighttime Microphysics (NtMicro) RGB and Day-Night Ban... products have been transitioned to CONUS and Alaska users... assessments have been conducted. The following are annotate... the impact of VIIRS imagery as provided via user feedback submi... an assessment. Detailed reports with these examples have been ...

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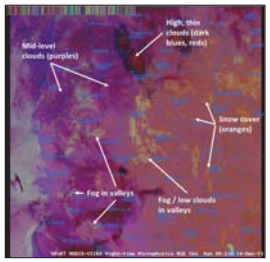
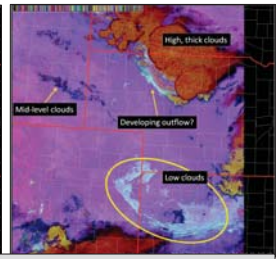
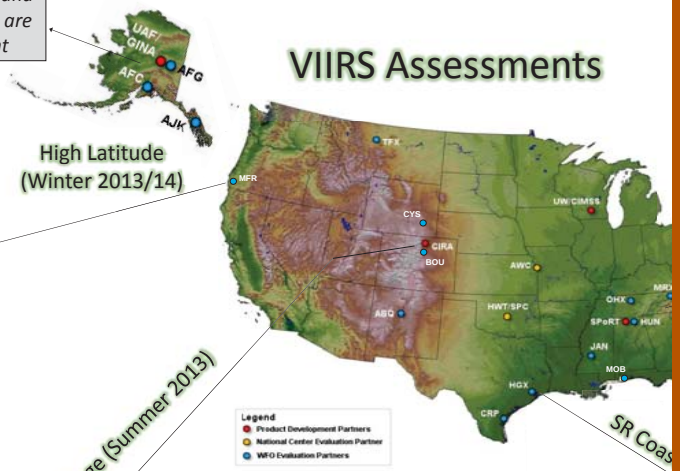


Forecaster feedback:Medford, OR (MFR) 14 Dec 2013
"Valley low cloud and fog simply jumps off the screen in all of these products tonight. […] Was able to discern that low cloud/fog was more widespread in the valleys than with any other products."

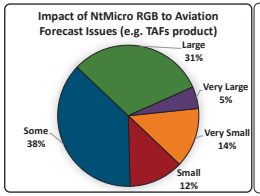


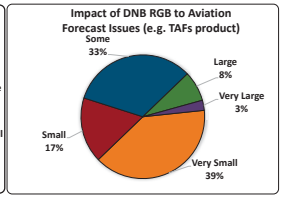
Front Range Collaboration: Outflow Boundaries, Jul 2013
A day-night band RGB using VIIRS IR (left) shows low (warmer) features as yellow and high (cooler) features as blue. The NtMicro RGB combines several VIIRS channels to discriminate cloud height, thickness, and fog. Low clouds resulting from outflow of storms are more efficiently analyzed.

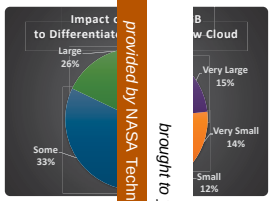


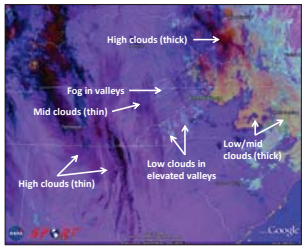
Assessment Results

Forecasters from the High Latitude as well as Southern Region Coastal and Inland groups submitted feedback on 80 specific events evaluating the impact to aviation nowcasts/forecasts as well as to differentiating fog from other cloud features (see graphs below). The interpretation of the RGB imagery was a learning process for many users; however, a notable percentage indicated large to very large impact from the products. In addition to the provided training, an RGB library of case examples is desired to more quickly increase the user's understanding. While future geostationary instruments will have similar RGB capabilities, users at high latitude will continue to benefit from VIIRS-like instruments.

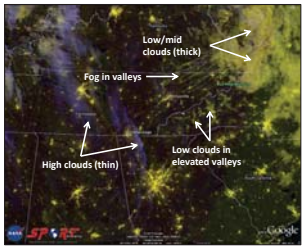






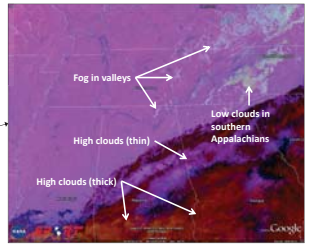


VIIRS Nighttime Microphysics RGB, 0736 UTC 20 September 2014

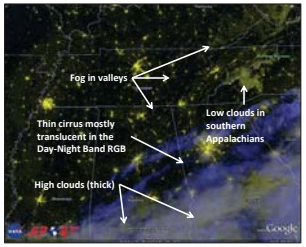


VIIRS Day-Night Band Radiance RGB, 0736 UTC 20 September 2014

Forecaster feedback from Morristown, TN (MRX), 20 Sep 2013,
"[…] the Nighttime Microphysics product […] did an outstanding job of clearly showing areas of fog vs. clouds […]. It was far superior to the 11-3.9 µm product in this regard. The DNB Radiance RGB showed fog clearly as well […]."

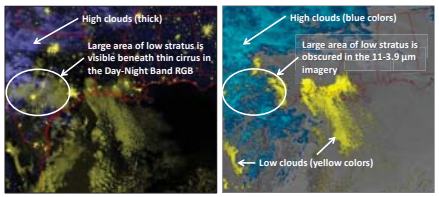


VIIRS Nighttime Microphysics RGB, 0658 UTC 22 September 2014



VIIRS Day-Night Band Radiance RGB, 6587 UTC 22 September 2014

SPoRT blog post from Huntsville, AL (HUN), 22 Sep 2013,
"The Nighttime Microphysics RGB helped again to delineate small areas of locally dense fog. […] Due to the resolution of the imagery and the efficiency it provides for fog detection, it could be helpful for limiting the extent of areas under advisory, and allowing for more descriptive impacts in advisory products."



VIIRS Day-Night Band Radiance RGB (left), and VIIRS 11-3.9 µm (right), valid 0749 UTC 19 Dec 2013

SPoRT blog post, Applications Integration Meteorologist, 19 Dec 2013
"In this situation, forecasters would have a much better idea of the extent of the low cloud deck. […] cloud bases were around 1-2 kft in that area of southern Texas, which could have significant impacts on sensible weather and forecasts, especially for aviation."

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