SNOW, ICE, AND POLAR WINDS

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Executive Summary

- Products:
    - Snow: Binary snow cover, snow fraction
    - Ice: Ice surface temperature, ice concentration, ice thickness/age
    - Polar winds

- All products meet requirements (with one qualification)

- All products have better performance than their IDPS counterparts (a few only slightly better; others substantially better)

- Planned improvements for J1 are minor

- All products are ready for J1!

Product Performance

Product	L1RDS APU Thresholds	Performance	Meets Spec?
Snow cover (binary)	90% correct typing	92-94% (daily)	Y
Snow fraction	10% uncertainty	10-20%	N (next slide)
Ice surface temperature	1 K uncertainty	0.9 K	Y
Ice concentration	10% uncertainty	8.9%	Y
Ice thickness/age	70% correct typing (new/young, other ice); no thickness requirement	90% (first-year/other); 0.5 m precision for thickness	Y
VIIRS winds	7.5 m/s accuracy, 3.8 m/s precision (mean vector difference)	6.1/7.0, 3.3/2.7 accuracy, precision (NH/SH)	Y

Major Risks/Issues and Mitigation

Risk/Issues	Impact	Mitigation
Cloud contamination	Impact varies with location and season, generally not large	Use only confidently clear pixels
Snow fraction may not meet requirements	None	Requirement is not consistent with GOES-R (15% accur; 30% prec) and should be changed

Future Plans/Improvements

Binary snow cover:
- No significant changes

Snow fraction:
- Possibly change output to include reflectance-based fraction + NDSI value rather than reflectance-based fraction and NDSI-based fraction

Ice surface temperature:
- Update regression coefficients with newer raob data and J1 VIIRS spectral response functions

Ice concentration:
- Improve tie-point processing
- Evaluate generating an I-band resolution product
- Validation with additional high-res data, e.g., SAR

Future Plans/Improvements, cont.

Ice thickness/age:
- Add ICESat-2 to validation efforts (launch in 2018)
- Evaluate the utility of bias corrections based on Cryosat-2 and ICESat-2 (2018)

Polar winds:
- Switch from the VCM to the Enterprise cloud mask (ECM)