Proposed Changes and Issues for V5.0
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• Additional RFI flagging
  • Missed detection of noise-like RFI
  • Add threshold flag (e.g. Tf > 340 K)

• Land Emissivity Model
  • Used to compute Ta_exp
  • Updates to be consistent with Aquarius soil moisture products and SMAP

• Beam2
  • SSS inter-beam differences
  • Faraday rotation angle
RFI flagging

- Some missed detections due to noise-like RFI
- Add RFI flag based on fixed thresholds
- Effective only over land; flag only; no data removed
Proposed Changes to Land Emissivity Model: 1/4

• Adopt SMAP model (non-frozen soil: T >0)
  – Mironov model for dielectric constant
  – SMAP ancillary data
    • Vegetation opacity (as implemented by USDA for Aquarius SM)
    • Land cover classification (as implemented by USDA for Aquarius SM)
    • Maps of sand/clay fractions & soil density
    • Roughness parameter
    • Single-scattering albedo
    • Land Surface Temperature (GEOS-5)
    • Soil Moisture (GEOS-5)
Proposed Changes to Land Emissivity Model: 2/4

• Frozen fraction (transition frozen/non-frozen)
  – Use the map of LST to determine how much of the land fraction is frozen
  – Use frozen fraction like the land/sea ice/water fractions

• Emissivity of frozen soil (T < 0)
  – Use averages of emissivity derived from Aquarius data
  – 1 deg resolution cells
Proposed Changes to Land Emissivity Model: 3/4

- Faraday angle
  - Use model (IGS) to compute Faraday over land

- Fill missing soil moisture near coasts
  - Average of nearest neighbors
Proposed Changes to Land Emissivity Model: 4/4

• Weighted/Non-weighted fractions
  – Currently use non-weighted fractions for $Ta_{exp}$
  – Changes global average of $Ta_{expected}$ in the open ocean
  – Evaluation
Beam2: Inter-Beam Differences (V3)

- Looked for Correlation
  - Significant correlation with Faraday rotation

- Beam 2 an Issue
  - Compare differences in SSS
  - Beam 2 stands out
    - $B2 - B1 \neq 0$; $B2 - B3 \neq 0$
    - $B1 - B3 \approx 0$
Beam2: Faraday rotation angle [L. Hong]
Beam2: TEC (V3) [from E. Dinnat]
Bonus
<table>
<thead>
<tr>
<th>Weekly average of Ta_expected</th>
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<th>Weigh.</th>
<th>Δ [K]</th>
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