Cloud thermodynamic phase from OCI and support for OCI cloud products

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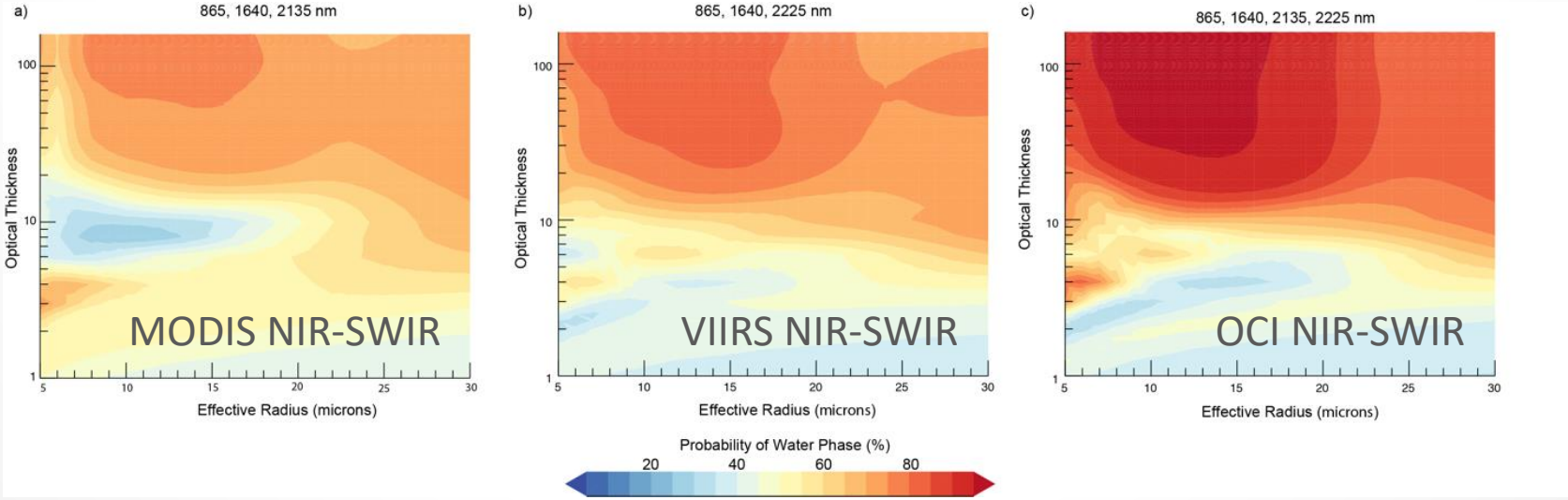
Project Overview

- Three primary tasks enabling PACE SDS OCI-only cloud algorithms:
  - Cloud thermodynamic phase algorithm leveraging OCI's unique complement of narrowband SWIR channels [*Lead: Coddington*]
    - Necessary prior for the cloud optical property algorithm
  - Forward RT support for PACE SDS at-launch cloud algorithms [*Lead: Meyer*]
    - MODIS-like cloud optical property forward RT look-up tables (LUTs) supporting team's previous delivery of heritage MODIS MOD06 cloud retrieval software to PACE SDS
  - Radiometric and geophysical match files for Aqua MODIS, SNPP/NOAA-20 VIIRS, CALIPSO CALIOP that enable spectral capabilities like OCI [*Lead: Holz*]
    - Specifically couples MODIS 2.13µm and VIIRS 2.25µm channels to support first task above

Project Updates

- What's been done:
  - Legwork for phase information content analysis complete (verified previous results, identified/fixed GENRA implementation issues, new forward RT calculations at cloud-top and TOA)
  - Generated cloud optical property forward RT LUTs and delivered to PACE SDS in August
  - Finished optimization/generalization of co-location software; currently in testing
- What's left to do:
  - Continue information content analysis (already underway)
  - Explore pathways for OCI phase algorithm training
  - Re-run imager match files (MODIS, VIIRS), add CALIOP as appropriate