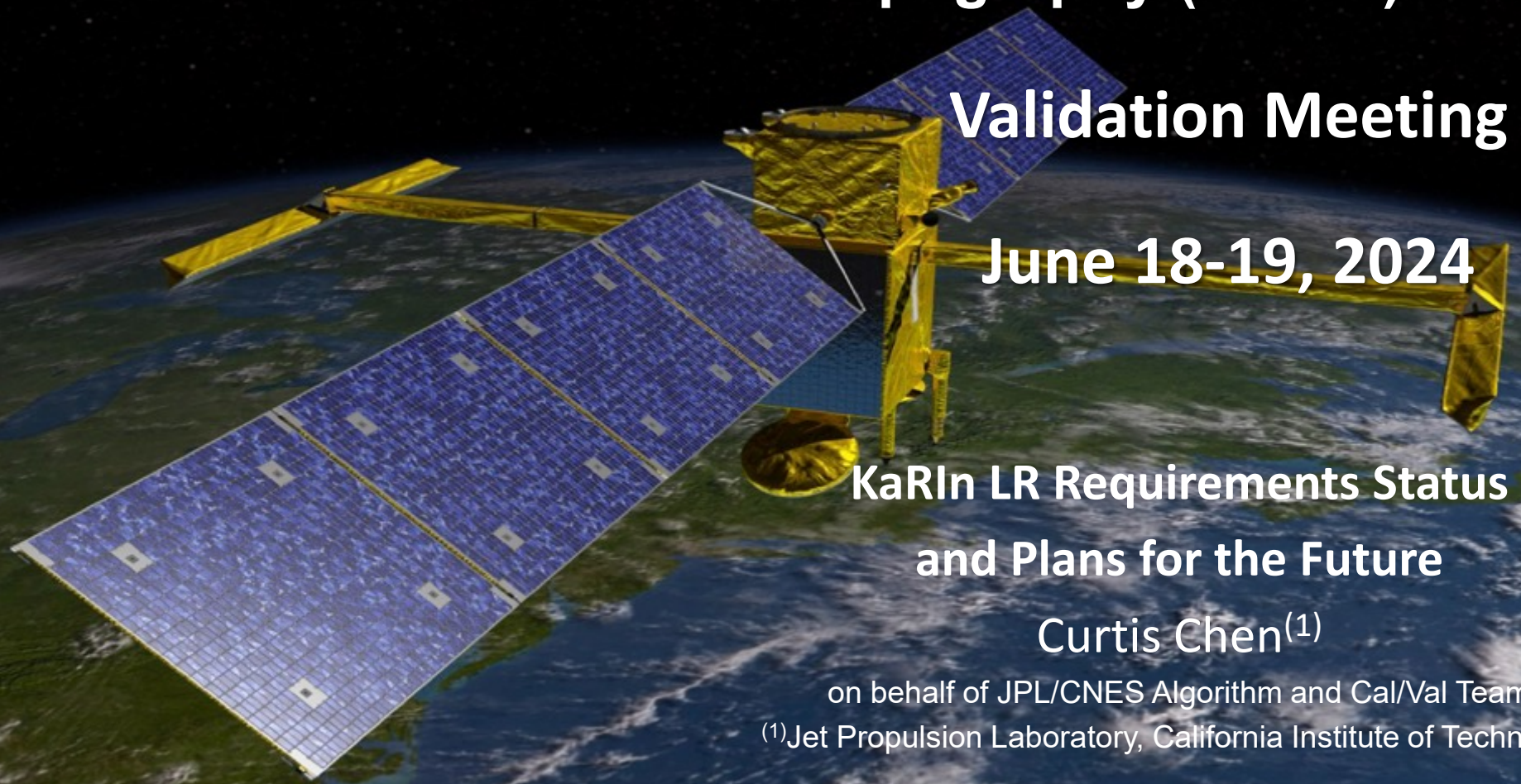
National Aeronautics and Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Surface Water and Ocean Topography (SWOT) Mission

Validation Meeting

June 18-19, 2024



KaRIn LR Requirements Status and Plans for the Future

Curtis Chen[1]

on behalf of JPL/CNES Algorithm and Cal/Val Team

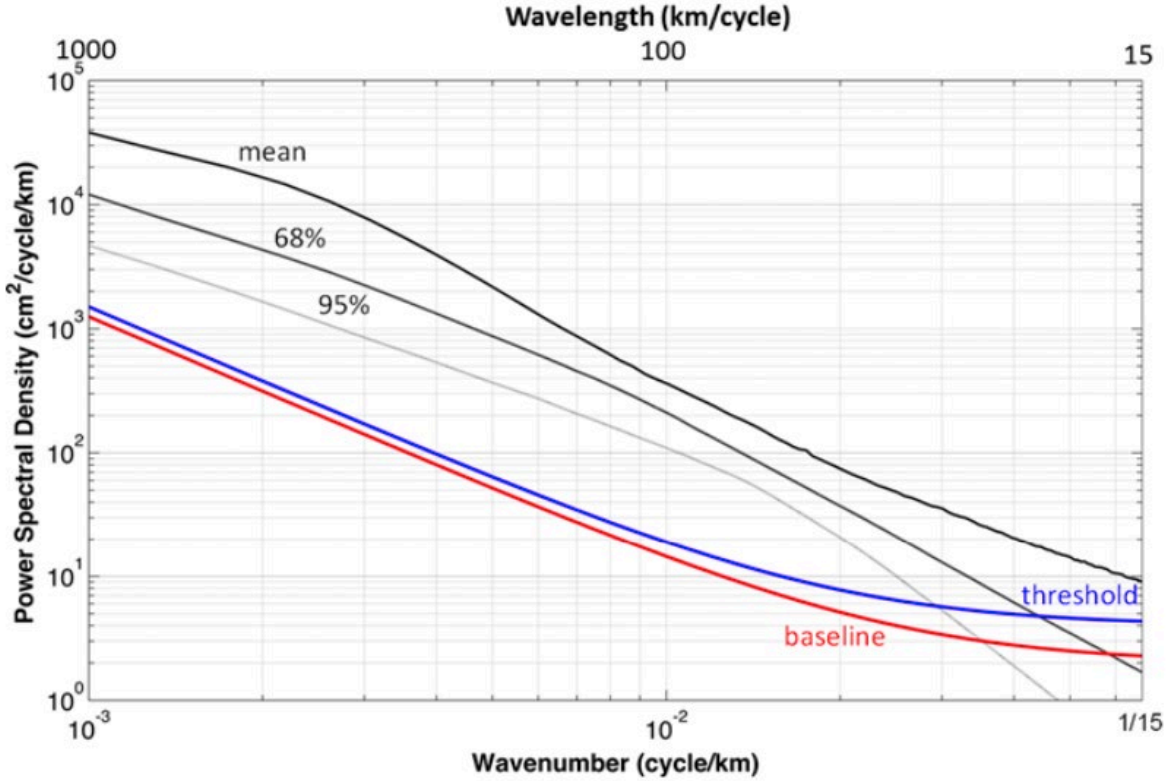
[1]Jet Propulsion Laboratory, California Institute of Technology

URS 325952/CL#24-3056

Outline

- Key KaRIn LR L2 requirements
- Recap of notable upcoming LR product changes
- Areas for future validation and algorithm development work

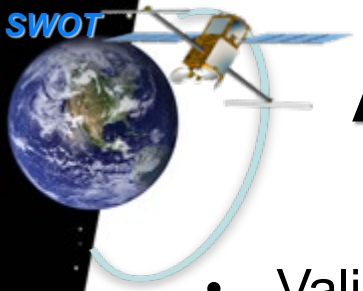
Key KaRIn LR L2 Requirement



- **KaRIn ocean performance is excellent and is consistent with along-track spectral requirement for LR**
  - See topics D1_10, D1_11, D1_12
  - Validation of requirement is limited by our ability to collect independent data with sufficient accuracy
  - That is, SWOT is doing about as good as if not better than dedicated, state-of-the-art in situ or local measurements, but doing so continuously and globally!

Notable Upcoming LR Product Changes

- Fall 2024:
  - Significant improvement to LR data over/near land
  - Enhancements to KaRIn significant wave height (SWH) estimate
  - Apply non-equilibrium ocean tide when computing SSHA
  - Height correction for range-Doppler coupling
  - Bug fixes
- Next bulk reprocessing:
  - Calibration updates
    - 2.5 dB radiometric calibration adjustment
    - Minor changes to phase screen (around +/-4 mm)
  - FES2022 ocean tide model
  - Update KaRIn wind speed estimate
  - Add sea surface height anomaly to L2_LR_SSH Unsmoothed file



Areas for Future Validation and Algorithm Development

- Validation and improvement of sea state bias (SSB) correction over KaRIn swath
- Refinement of quality flagging
- Assessment of performance near eclipse events
- Additional characterization and possible algorithm enhancement of areas other than open ocean (coasts, inland water, ice, etc.)

Looking Forward to Great Science from SWOT LR Data!