Latest studies about the ground track location for either 1-day or 21-day orbits

The Cal/Val team steering committee
1- day orbit

- Compliant with CalVal objectives
  - Golden sites
  - Other complementary sites
- Trying to assess as much as possible scientific objectives
  - Ocean:
    - Studying the submesoscale SSH variability
    - Validating the energy cascade in different dynamical regions
    - Investigating high frequency dynamics – tides, internal tides & internal wave continuum
  - Hydrology:
    - Sampling the climatic variability of rivers (from arctic to tropical)
    - Sampling the range of reach widths (from 100m to several km)
    - Sampling large and gentle slopes
    - Sampling the range of lake size (from 250m)$^2$ to largest lakes
    - Sampling frozen lakes
High mesoscale Internal tides Estuaries

Estuaries

Internal tides

High mesoscale

Estuaries
Bass Strait (1-day orbit)
From 1-day to 21-day

• Basic idea:
  – Having a continuity between the 1-day and 21-day phases
• How to?:
  – Preserve one track of the 1-day orbit (maximize the overlap between the 2 swaths by using the same equatorial longitude value).
• Where?:
  – Over the longest continuous measurement track => Pacific
• Other constraints
  – Allowing the use of historical calibration sites (Harvest, Corsica, Bass Strait)
  – Try to be close to “golden sites” used during the 1-day phase
From 1-day to 21-day
Bass Strait (21-day)
Harvest (21-day)
Corsica (21-day)
California Site (21-day)
Mediterranean Site (21-day)
Willamette River Site (21-day)
Garonne River Site (21-day)
Conclusion

• The studied 21-day is compliant with the constraints
  – Not to far from the “Golden sites” used during the 1-day
  – Allow using current Jason calibration sites
• What is the needed accuracy for ground track location?
  – Within 1 km could be enough but needs to be defined according to project constraints