

Extrapolation intervals

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We suggest these criteria for the *processor* to use in determining the data values used for near-surface AOP extrapolation.

Tilt criteria

- For ‘satellite-cal/val-suitable’ measurements, *processor* should use a tilt criterion of $<5^\circ$ for non-overcast skies, for overcast skies it can be relaxed to 8° . (if necessary, relaxation of limit could be relaxed in deeper portions of a cast)
- ‘Research-suitable’ flagged casts may allow values with a greater tilt to be used.
- Goal of tilt stability during the cast is $< 3^\circ$. (?)

Homogenous Layer criteria

- Use temperature to establish the depth of homogenous layer. This will not work in some environments, but not all. Use other criteria if available.
- Use red wavelength data to establish extrapolation interval first, then may extrapolate from a deeper limit for the blue light as long, as the interval remains in the homogenous layer
- Same extrapolation layer used for radiometric estimates Lu, Ed, Eu ...
- Should be an exercise to compare these recommendations with other (Legacy?) methods of extrapolating radiometric estimates?
- Strive for automated choice of the interval, but an option should exist for manual override (with mandatory explanation)
- Explore other possible methods of determining the limits of the noise/dark (threshold)

Possible metrics

- Variance of Es, tilt, and temperature within the layer
- profile velocity (?);
- uniformity (or number?) of sampling of points used for extrapolation
- do we need a different set of metrics near the surface in clear waters?
- Use sky conditions to notify user that wave focusing may be a problem and the shallowest depth for the extrapolation interval may not be from the shallowest data - alert for manual user examination.

These recommendations may have problems with some legacy data