Processing and Reprocessing for Profilers
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Inputs and outputs

Profiles at full spectral and depth resolution
Lu (uW/cm^2/sr/nm)
Es(uW/cm^2/nm)
Eu (uW/cm^2/nm)
Ed (uW/cm^2/nm)
Scalar irradiances
PAR (from integration if bands suitable)
Enet (lam,z)
Kd (lam,z) Technique to select z interval required here
Kpar
Klu
Lu/Ed
Eu/Ed
mu_d
mu_u
mu_average
1/LC integrated Ed (lam,z) lam dlam
dz/dt
mask/Flag field
Tilts (deg)
Temperature internal and water (deg)
GMT
GPS
Met
CTD (salinity, temp)
Fluor, C

> Kd and Klu need to be calculated with depth, the bulk Kd verses Kd from a thin surface layer. So you can use surface Kd to find optical depth and get a bulk Kd. Kp profile is a product, bulk Kd for optical depth. Objective of this Kd is a transparency index not a way to extrapolate to the surface. (default is 1/Kpar)

Binned profiles (in wavelength, time, or space)
Lu, Es, Ed, Eu, Kd, Klu, Kpar, Fluor, C, CTD
Not binned is default then let them chose interval and method if desired

Surface products
Lu, Ed, Eu (lam,0-+)

Kd and Kl(lam,delta z extrap) - extrapolated, use to get Lu and Es
nLw(lam)
Lw(lam)
exact nLw(lam)
R (irrad) and Rrs (rad) (lam)
Es(lam) - average - how is this calculated and stats
Q(lam)
Esky, Esky/Es
OC algorithm ratios

Shadowing correction applied here

Bulk product - select depth interval
Kd(lam, 0- to 1/e*Es) or for 1% light level or Muellers 37% light level
Kpar(lam)
Zpar (1/e)
Zpar 10%
Zpar 1%
FLH
uncertainties

Need header flags for entire casts to be chucked
Need to pass the uncertainties through from previous processing and incorporate in calculations
here

Processing

1) Separate processing for fixed depth and profiling instruments (should be in meta file, ie
ingest)

2) Base calculations { profile, time flag} - error calculations
        data flags

3) Optional binning - select bin widths (time and depth) - error calcs
        Shadowing correction

4) surface products calc - error calculations

interactive aggregation---

5) multicast aggregation/ selection

6) calculate statistics or uncertainties - statistics used to determine in first cut but must also
interactive

7) output/ archive - selected outputs , three files (profile, binned, surf/bulk data)

Format / submit for SeaBASS

Processing lineage / database for reprocessing facilitation

What user selected inputs would not make the less useful for cal/val
     ie what depth bins would be bad, Jeremy says not binning