

## **Corrections:**

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### ***Calibration***

Inputs data can be raw instrument counts or calibrated radiance / irradiance

If raw – need gain file, dark file & measurement equation to calibrate radiance / irradiance

Some instruments have measurement equations (or dark files) that depend on in situ / internal temperature, stray light, out-of-band, etc.

### ***Corrections to calibrated data***

#### **Time Synching**

Instrument characteristics & detailed time sampling protocols  
Assumed time base

#### **Pressure tare - High**

Surface file

#### **Depth correction for radiance / irradiance to pressure sensor – High**

Position information

#### **Self-shading - High**

Need algorithm for each instrument  
Size / shape of package  
Relationship to solar geometry  
Diffuse to direct sky / cloud  
IOPs or path to get them from AOP's

#### **Wavelength co-registration – High**

Choice of algorithm for interpolation  
Bandpass differences between instruments

#### **Es variation – High**

Option of normalizing profile  $E_d$  /  $L_u$  with  $E_s$  observation

#### **Cosine collector correction - Moderate**

Need cosine response curve  
Need radiance distribution and tilt

#### **Immersion coefficients - High**

Radiance - changes of field of view

Irradiance - less importance for cal/val because Es is used in LwN

Need uncertainty bounds and requires research

### **Platform perturbations - Low**

Ship, tower, bridle, etc.

Need uncertainty bounds and requires research

## ***Filtering Operations***

### **Tilt - High**

Mask / flag data for set range values

Less important for Lu than Ed

Want both masks and flags

### **De-spike - high**

We are using full bandwidth obs to calculation – no pre-filtering for binning

Removal of time / depth artifacts due to changes in gain setting

Removal of spectral spikes in hyperspectral obs of random / unknown origins

Removal of temporal spike in buoy data

### **Clouds - high**

Masking/flagging for highly variable clouds

### **Low signal levels - high**

Set noise equivalent radiance/irradiance levels

## ***Red herrings***

Raman corrections

Polarization

Exact “Lw” and true BRDF correction

Mismatch of time constants among measurement suite on same package

Hysteresis

Biofouling

Uncertainty of all of these corrections

Bubbles

Bioluminescence