



International  
Ocean Colour Science  
Meeting 2017

## Breakout session #1:

# Quantifying the benefits and challenges of HYPERSEPECTRAL remote sensing

*Looking towards the future of space-borne radiometry*

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# Objectives of discussion #1:

- ~~• WHAT CAN WE DO WITH HYPERSPECTRAL MEASUREMENTS?~~
- Prioritization and recommendations directly to space agencies with regard to the following:
  - Algorithm development
  - In situ hyperspectral measurements
  - RT modeling and beyond (e.g. machine learning)

*What are our knowledge gaps and what do you need to mitigate them?*

*We want to hit the ground running when we roll out the next generation of hyperspectral satellite missions...*

# DISCUSSION:

*Learning from the past...*

- *What are some common challenges among users that are unique to working with hyperspectral data?*
- *What challenges did we face with data/products from HICO, SCIAMACHY, OMI, airborne (PRISM, Geo-TASO, GCAS, AVIRIS, etc.) that we hope to mitigate with future missions?*

# DISCUSSION:

## *Making improvements...*

- *What in situ instrumentation advances could help facilitate the next generation of hyperspectral-based algorithms?*
- *Are there any improvements to radiative transfer modeling that could maximize the benefits of hyperspectral data or vice versa (e.g. how does Hyperspectral data improve RTM)?*

# DISCUSSION:

*Looking into the future...*

- *What other analytical tools/approaches can help us maximize the development of products from hyperspectral measurements? Should we even be working towards “global” products?*
- *What metrics do we use to demonstrate that we are making improvements to products using hyperspectral data?*

# DISCUSSION:

## *Optimizing spectral scales...*

- *What spectral resolution is required in order for hyperspectral-derived data to be applicable to science questions? Does spectral sub-sampling ( $< 1\text{nm}$ ) bring anything new to the table?*
- *When do we meet a point of vanishing returns when increasing spectral resolution (e.g. too much noise and not enough signal)?*