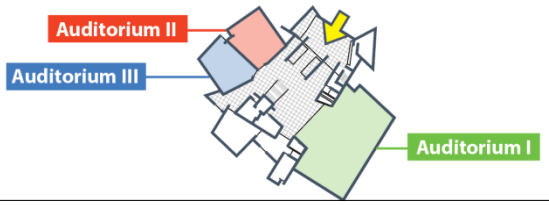

MONDAY 15 MAY	AUDITORIUM I
BREAKOUT SESSION 1	**Quantifying the benefits and challenges of hyperspectral remote sensing: Looking towards the future of space-borne radiometry**
Co-Chairs:	**Ryan Vandermeulen** (NASA/SSAI), **Kevin Turpie** (NASA/U. Maryland), **Emmanuel Boss** (U. Maine), **Astrid Bracher** (AWI), **Susanne Craig** (Dalhousie U.), **Cecile Rousseaux** (NASA/USRA)

Synopsis:

Near-term planning and design specifications for future space-borne hyperspectral ocean color sensing systems is currently underway, which will ultimately enable unprecedented synoptic measurements that have potential to resolve benthic substrate types, improve atmospheric correction, enhance bio-optical retrievals, gauge coral reef health, and distinguish phytoplankton functional types on global scales. The purpose of this workshop is to initiate discussions regarding optimal spectral/spatial sampling frequency, signal-to-noise ratio (SNR), atmospheric correction procedures, or other considerations required in order to maximize the quality of data retrievals obtained from hyperspectral missions. Noting that increased spectral resolution comes at a cost of decreasing the SNR of space-borne sensors, in addition to setting potential boundaries on spatial resolution, it is imperative to examine the balance between what is gained and lost at various spectral resolutions and ranges. In this session, we will encourage a critical community discussion focusing on characterizing what hyperspectral remote sensing can or cannot provide for key applications, how to quantify metrics of performance for such applications, as well as the challenges associated with atmospheric correction and sensor design considerations. Lessons learned from existing hyperspectral data sets will help drive community discussion, potentially opening the door to new workshops to quantify drivers of data quality and the levels needed for key applications.

14:15 – 14:23 **Introduction and Meeting Objectives**
Susanne Craig (Dalhousie Univ.)

PART 1: Products, Science Questions and Applications (50 minutes)

14:25 – 14:33 **Scientific Roadmap for Phytoplankton Diversity from Ocean Color**
Astrid Bracher (AWI)

14:35 – 14:43 **Out-of-the-Box Applications Derived from Hyperspectral Remote Sensing**
Heidi Dierssen (UCONN)

14:45 – 15:10 **Open Discussion**
Theme: *What ocean-based products are enhanced by hyperspectral measurements? How do we quantify metrics of performance? What in situ instruments are needed for validation? Where are our gaps in knowledge?*

PART 2: Atmospheric Correction Challenges (50 minutes)

15:10 – 15:18 **New approaches to Atmospheric Correction**
Francois Steinmetz (HYGEOS)

15:20 – 15:28 **Atmospheric correction of HICO data**
Amir Ibrahim (NASA/USRA)

15:30 – 15:55 **Open Discussion**
Theme: *What novel approaches to atmospheric correction are facilitated with hyperspectral data? What are the major challenges? How do spectral band requirements for atmospheric correction differ from surface ocean products?*

PART 3: Sensor Design Considerations (50 minutes)

15:55 – 16:13 **CEOS feasibility study for a hyperspectral sensor to observe coastal and inland aquatic ecosystems**
Arnold Dekker (CSIRO)

16:15 – 16:40 **Open Discussion**
Theme: *What radiometric performance and spectral resolution is required in order for hyperspectral-derived data products to be applicable to science applications? How much instrument noise can be realistically tolerated in a hyperspectral algorithm?*

Summary and Connections (10 – 15 minutes)

16:40 – 17:00 **Final discussion –** Breakout session synthesis and community input