

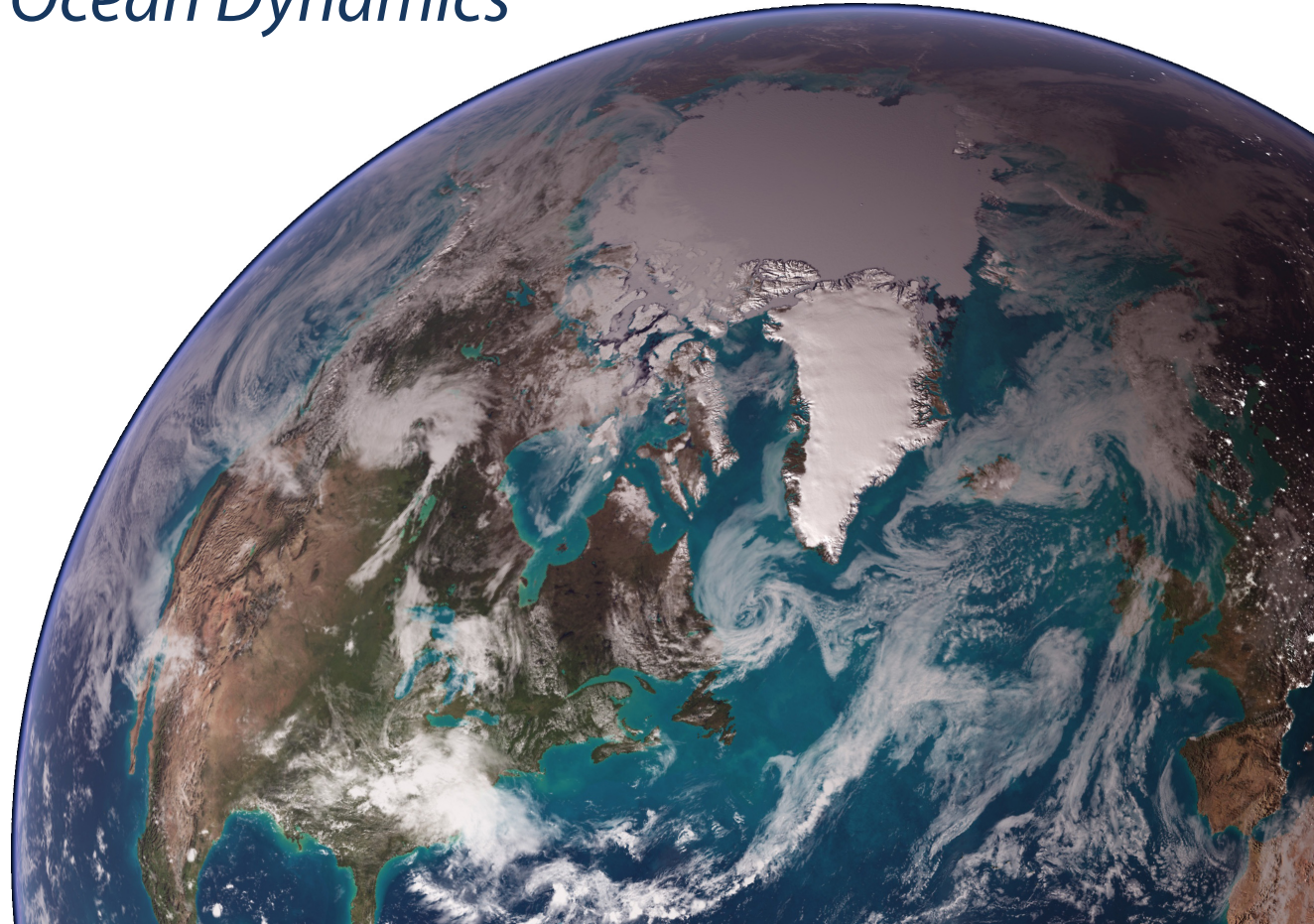


## Theme 2: Understanding the Physical System

### *Atmosphere and Ocean Dynamics* *Summary*

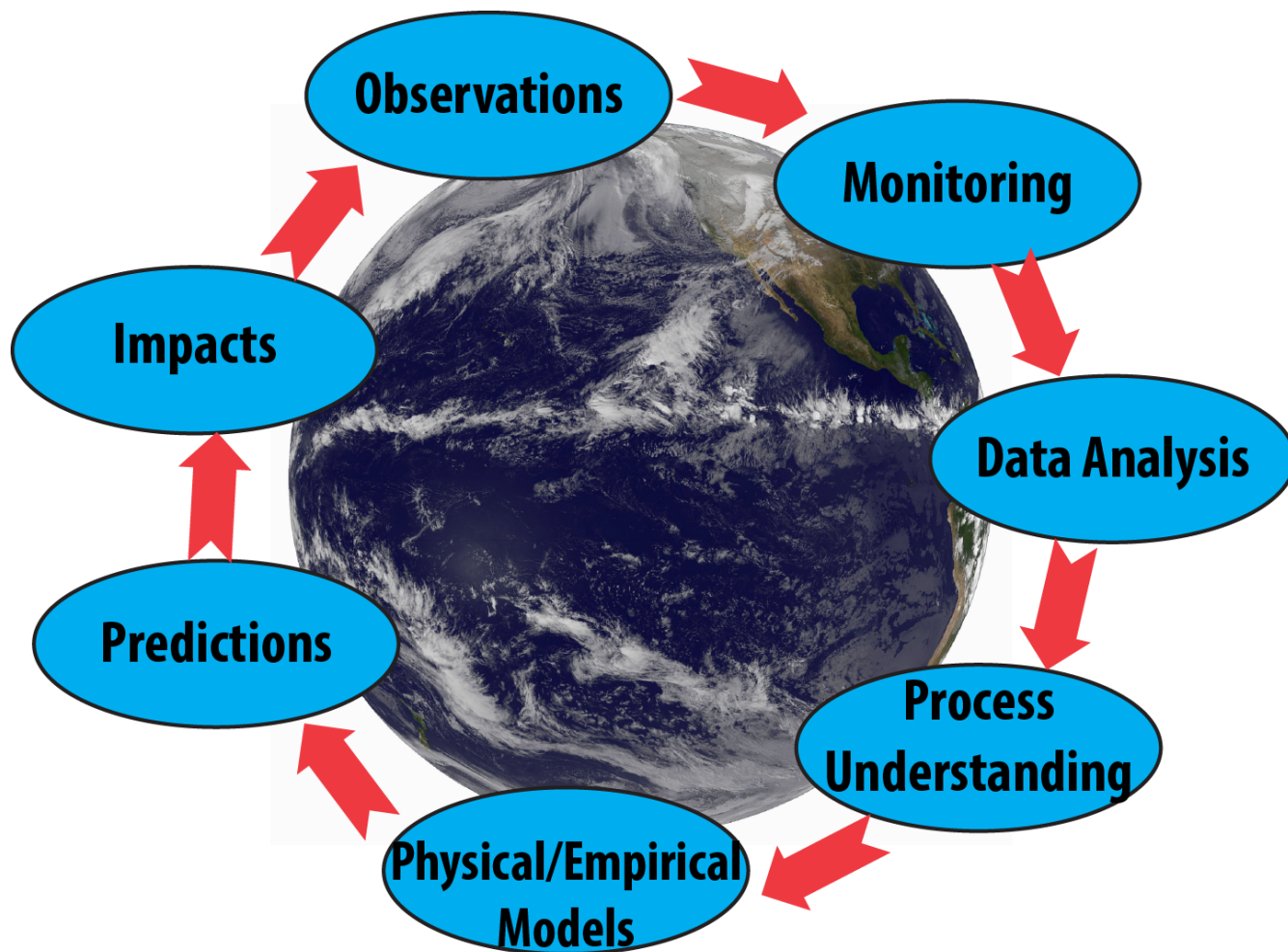
George Kiladis

Science Review  
12-14 May 2015  
Boulder, Colorado

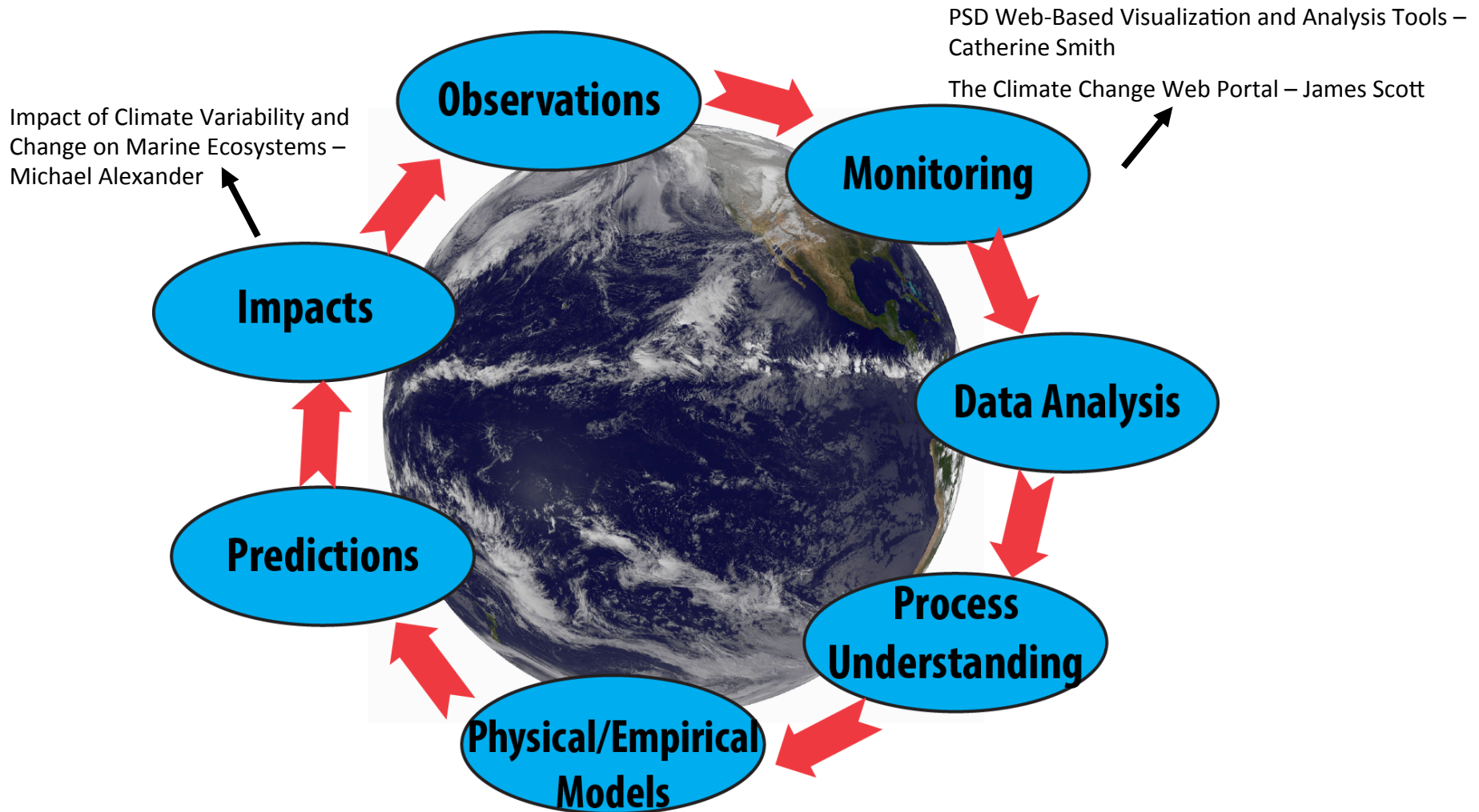


We continue to work on the **Characterization** and **Understanding** of the State of the Global Atmosphere and Ocean...with a primary focus on tropical-extratropical interaction

We continue to work on the **Characterization** and **Understanding** of the State of the Global Atmosphere and Ocean...with a primary focus on tropical-extratropical interaction



We continue to work on the **Characterization and Understanding** of the State of the Global Atmosphere and Ocean...with a primary focus on tropical-extratropical interaction





## Atmosphere and Ocean Dynamics

Going forward we plan to continue to address the following PSD 2015  
Overarching Science Goals:

1. *Develop new knowledge and capabilities to explain observed weather and climate extremes...*
2. *Identify new sources of predictive skill and improve predictions of weather, water, and climate through observations, understanding and modeling of physical processes...*

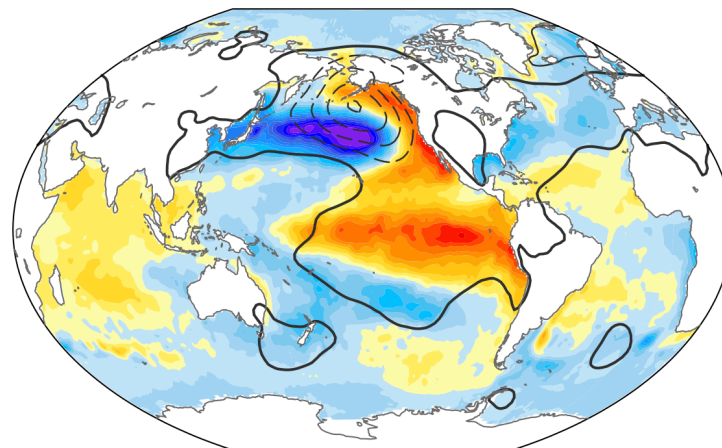
## Atmosphere and Ocean Dynamics

Going forward we plan to continue to address the following PSD 2015 Overarching Science Goals:

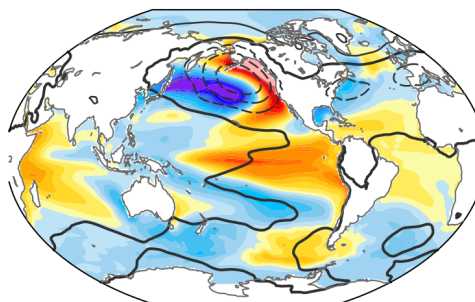
1. *Develop new knowledge and capabilities to **explain** observed weather and climate extremes...*
2. *Identify **new sources of predictive skill and improve predictions** of weather, water, and climate through observations, understanding and modeling of physical processes...*

# Assessing the Ability of Coupled Models to Simulate the PDO

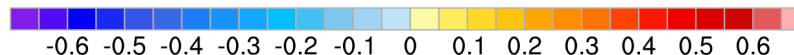
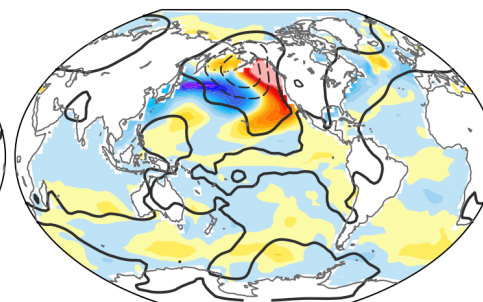
Observations



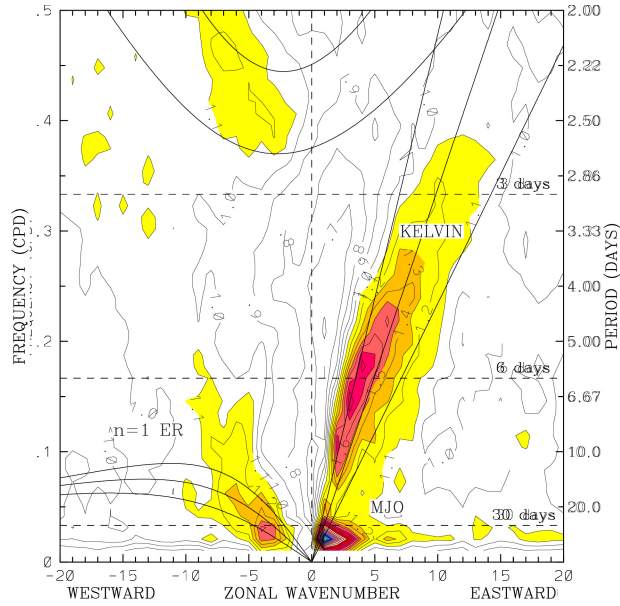
Model A



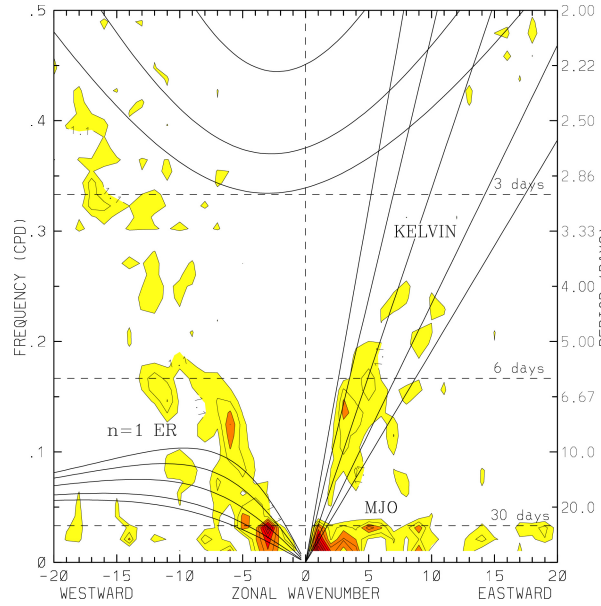
Model B



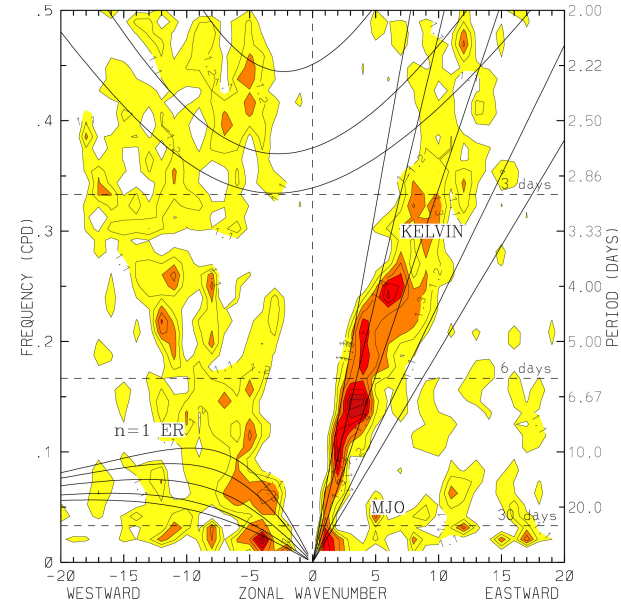
# Work with Global Systems Division (GSD/ESRL) to Assess the tropical performance of the Flow-following finite-volume Icosahedral Model (FIM)



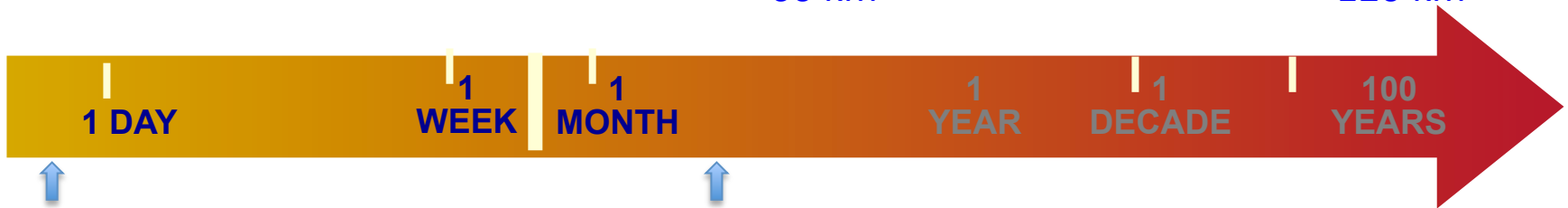
NOAA OLR Power Spectrum



FIM Run 2 OLR  
GFS Physics and  
Convection  
60 km

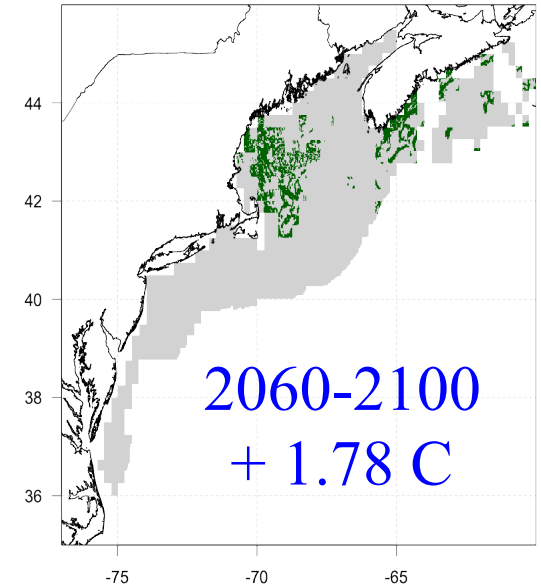
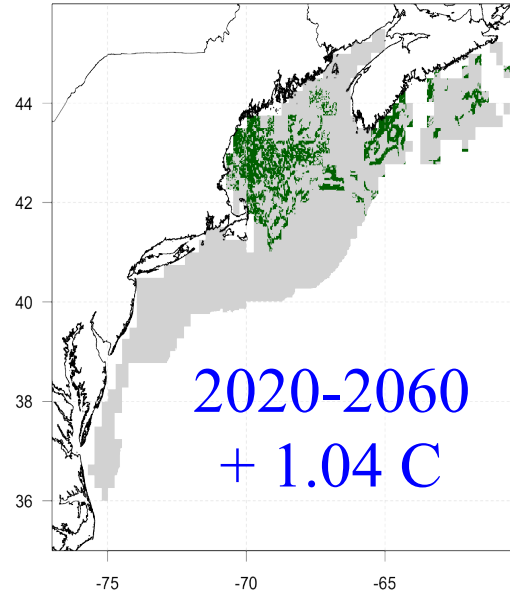
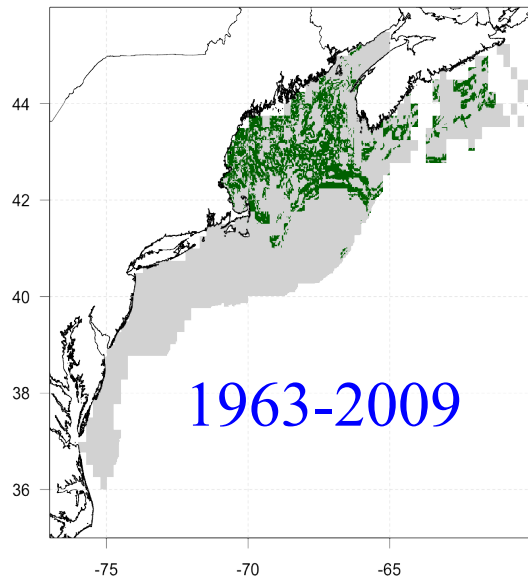


FIM Run 2 OLR  
GFS Physics plus  
GF Convection  
120 km





## Work with National Marine Fisheries Service (NMFS) to Assess Climate Change Impacts on Cusk



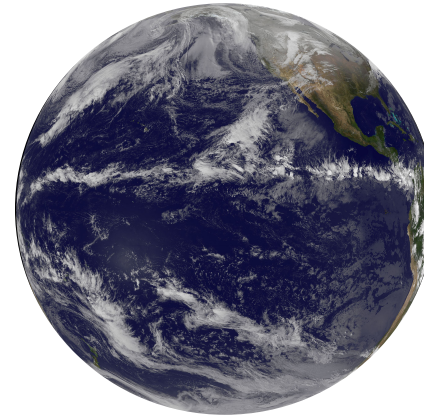
- Population decreased rapidly over the last 20 years
- Consider listing species as **threatened or endangered**
- Needs cold water and rocky bottom
- Warming causes habitat to shrink and fragment



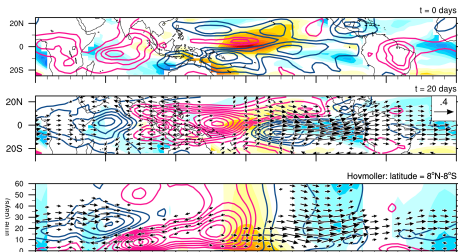
## Our Speakers



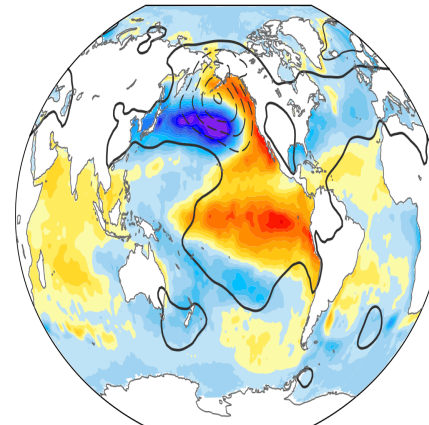
Turbulent Fluxes-  
Andrey Grachev



Equatorial Waves-  
Juliana Dias



Linear Inverse Modeling-  
Matthew Newman



Pacific Decadal  
Oscillation-  
Mike Alexander