

# Agenda

Geophysical Fluid Dynamics Laboratory  
201 Forrestal Road  
Princeton, NJ  
Joseph Smagorinsky Seminar Room (unless otherwise noted)

## **Day 0: Monday, May 19**

7:00pm: Dinner for Review Panel (CLOSED, in the Plainsboro Room at Homewood Suites)

## **Day 1: Tuesday, May 20**

7:00am: Breakfast with OAR DAA Steve Fine, and Review Panel in the Plainsboro Room at the Homewood Suites

8:00am: Transport to GFDL (Hotel Shuttle for Review Panel, other guests carpool/shuttle from hotel lobbies)

### **Session 1**

#### **Welcoming Talks**

Timekeeper: John Sheldon

8:15am *Welcome and Introduction* – V. Ramaswamy (GFDL)

8:25am *Logistics* – Brian Gross (GFDL)

8:30am *Overview of NOAA and OAR research planning and funding; Introduction of Review Panel* – Steve Fine (OAR)

8:50am *State of GFDL* – V. Ramaswamy (GFDL)

9:30am BREAK (15 min)

### **THEME 1. Modeling the Earth System**

#### **Session 2**

#### **Chair: Stephen Griffies**

Timekeeper: John Wilson

9:45am Opening talk: *Introduction to GFDL Earth System Models* - Mike Winton (GFDL)

10:00am *Atmospheric Dynamical Core and Seamless Weather-Climate Modeling* - SJ Lin (GFDL)

10:20am *Atmospheric Physics* - Yi Ming (GFDL)

10:40am *Atmospheric Chemistry* - Larry Horowitz (GFDL)

11:00am *Hydrology* - Chris Milly (USGS)

11:15am *Ocean and Ice-sheet Modeling and Sea Level Rise* - Bob Hallberg (GFDL) and Olga Sergienko (CICS)

11:40am *Climate Sensitivity* - Mike Winton (GFDL)

11:55am Session Recap - Mike Winton (GFDL)

12:00pm Discussion (45 min)

**12:45 – 2:00pm LUNCH**

1:00pm *Hurricane modeling and forecasting at GFDL* - Tim Marchok (GFDL)

1:20pm *GFDL's Role in CMIP: A Look Back; A Look Ahead* - Ron Stouffer (GFDL)

1:40 BREAK

**Session 3**

**Chair: Leo Donner**

Timekeeper: Stuart Freidenreich

**Atmospheric and Ocean Model Development for GFDL's Next-Generation Climate and Earth System Model**

2:00pm *Opening talk* - Isaac Held (GFDL)

2:20pm *Towards the next generation GFDL global atmospheric model* - Chris Golaz (GFDL)

2:35pm *Bias Reduction as Guidance for Developing Cumulus Parameterization in AM4* - Ming Zhao (UCAR)

2:50pm *Next Generation Ocean and Sea-Ice Models* - Alistair Adcroft (CICS)

3:05pm Session Recap - Isaac Held

3:10pm Discussion (~25 min)

3:35pm BREAK (20 min)

## **Session 4**

**Chair: Brian Gross**

### **3:55pm: Theme 1 Poster Session (CLOSED - 35 min)**

#### Room 103

1. Lucas Harris (GFDL) - Regional climate and hurricane simulations with GFDL's 2-way nested global-regional model
2. Pu Lin (CICS) - A robust tropical bottom-up control of the lower stratospheric circulations
3. Steve Garner (GFDL) - A new gravity wave drag scheme for GFDL AM4
4. Xi Chen (CICS) - A (brand spanking) new finite-volume dynamical core on the cubed-sphere using a fast Riemann solver

#### Room 217

5. David Paynter (GFDL) - Benchmarking a new version of the GFDL radiation code
6. Huan Guo (UCAR) - A PDF-based unified cloud and turbulence scheme (CLUBB) in AM3: Implications for marine stratocumulus
7. Nir Benmoshe (CICS) - Implementation of spectral bin microphysics within GFDL's cloud-resolving regional and global models
8. Kara Sulia (CICS) - Ice microphysics across scales: with a focus on particle aspect ratio
9. Jasmin John (GFDL) - Key drivers of methane lifetime from 1860-2100
10. John Krasting (GFDL) - Trajectory sensitivity of the transient climate response to cumulative carbon emissions

4:30pm Theme 1 Poster Session (OPEN) in Jerry D. Mahlman Lobby

4:30pm Meeting with Review Panel, Stakeholder G. Stephens (CLOSED, 15 min) in Room 217

4:45pm Meeting with Review Panel, Selected GFDL Scientists (CLOSED, 40 min) in Room 217

1. Bruce Wyman
2. Tim Marchok
3. Matt Harrison
4. Dan Schwarzkopf
5. Songmiao Fan
6. Lori Sentman
7. Jeff Ploshay
8. Bonnie Samuels
9. Bill Hurlin

10. Sergey Malyshev (CICS)
11. Fanrong Zeng
12. Amy Langenhorst
13. Rusty Benson

5:00pm Cookout begins for registered guests on the lawn in front of GFDL

5:25pm Review Panel (optional closed session)

Adjourn

**Day 2: Wednesday, May 21**

7:15am Breakfast with Review Panel, GFDL Director and Deputy Director (CLOSED) in the Plainsboro Room at the Homewood Suites

8:15am: Transport to GFDL (Hotel Shuttle for Review Panel, other guests carpool/shuttle from hotel lobbies)

**THEME 2. Climate Variability and Change: Understanding and Prediction**

**Session 5**

**Chair: Kirsten Findell**

Timekeeper: Seth Underwood

**Prediction**

8:30am *Overview of seasonal to decadal to centennial prediction at GFDL* - Gabe Vecchi (GFDL)

9:00am *Understanding and Predicting Arctic and North Atlantic variability* - Rym Msadek (UCAR)

9:15am *Seasonal to Decadal Scale Climate Prediction* - Xiaosong Yang (UCAR)

9:30am *Prediction of Regional Hydrology and Snowpack* - Sarah Kapnick (CICS)

9:45am *Statistical Downscaling for Regional Climate Change* - Keith Dixon (GFDL)

10:00am BREAK (15 min)

**Understanding Internal Variability and Forced Change**

10:15am *Detection and Attribution of Climate Change, Including Extremes* - Tom Knutson (GFDL)

10:35am *Understanding Atlantic Multidecadal Variability (AMV), AMOC, and Arctic Sea Ice* - Rong Zhang (GFDL)

10:50am *ENSO Predictability and Dynamics* - Andrew Wittenberg (GFDL)

11:05am *Simulating Regional Hydroclimate Variability and Change on Decadal Scales* - Tom Delworth (GFDL)

11:20am *Session Recap* - Gabe Vecchi

11:25am Discussion (45 min)

**12:10 – 1:20pm LUNCH**

12:15pm: **Theme 2 Poster Session (CLOSED, 30 min)**

**Chair: Marian Westley**

Room 103

1. Liwei Jia (UCAR) - Improved Seasonal Prediction of Temperature and Precipitation over Land in a High-Resolution GFDL Climate Model
2. Lakshmi Krishnamurthy (UCAR) - Seasonal Change of Great Plains Low Level Jet and ENSO Relation
3. Liping Zhang (CICS) - The Pacific Decadal Oscillation and North American Hydroclimate
4. Shaoqing Zhang (GFDL) - Retrieval of Tropical Cyclone Statistics with a High-Resolution Coupled Model and Data

Room 217

5. Carlos Gaitan (U. Oklahoma) - Statistical Downscaling Using Machine Learning
6. Bill Stern (GFDL) - MJO and Intraseasonal Activity in Climate Prediction GCMs at GFDL
7. Malte Jansen (CICS) - Energetically Consistent Parameterization of Sub-Grid Eddies in Eddy-Permitting Ocean Models
8. Whit Anderson (GFDL) - CM2.6 SST, SSS, and ESM2.6 CHL on the touch screen
9. Alexis Berg (CICS) - Impact of Soil Moisture-Atmosphere Interactions on Surface Climate Variability
10. Zack Subin (CICS) - Incorporating a topographic hydrological gradient into an ESM-coupled land model

12:45pm Theme 2 Poster Session (OPEN) in Jerry D. Mahlman Lobby

12:45pm: Meeting with Review Panel, CICS/AOS graduate students (CLOSED, 30 min) Room 217

1. Hannah Zanowski
2. Kityan Choi
3. Spencer Hill
4. Joe Majkut
5. Geeta Persad
6. Sam Potter
7. He Wang
8. Zhaoyi Shen
9. Anna Fitzmaurice
10. Minjin Lee (CEE)

### **THEME 3. Chemistry, Carbon, Ecosystems, and Climate**

#### **Session 6**

**Chair: Marian Westley**

Timekeeper: Fabien Paulot

1:20pm Opening Talk: *Coupled Carbon-Climate Earth System Modeling* - John Dunne (GFDL)

1:45pm *Chemistry-Climate Interactions* - Vaishali Naik (UCAR)

2:00pm *Air Quality and Chemistry* - Jingqiu Mao (CICS)

2:10pm *Land-Atmosphere Interactions: The Case for Dust* - Paul Ginoux (GFDL)

2:25pm *Land Ecosystems - Climate Interactions* - Elena Shevliakova (CICS)

2:45pm *Connecting Climate and Marine Ecosystems* - Charlie Stock (GFDL)

3:05pm *Recap* - John Dunne

3:10pm Discussion (40 min)

#### **3:50pm END OF GFDL Science Review PUBLIC SESSIONS**

3:50pm BREAK (15 min)

4:05pm Meeting of Review Panel with Stakeholders (via phone for 90 min) Room 222

4:05pm Meeting of OAR, GFDL Director, Deputy Director with LO reps (60 min) Room 217

5:35pm Adjourn: Closed session for Review Panel

7:00pm Dinner with OAR Leadership, Research Council, and Science Board (CLOSED) at Prospect House - Princeton University. Transportation of Review Panel to Dinner and back to the Hotel will be provided.

Presentation: *High Performance Computing and Modeling Infrastructure* - Brian Gross (GFDL) and V. Balaji (CICS)

**Day 3: Thursday, May 22**

7:15am Closed session breakfast (Review Panel, Jorge Sarmiento, Sonya Legg, *CICS Presentation*) in the Plainsboro Room at the Homewood Suites

8:00am: Transport to GFDL (Hotel Shuttle for Review Panel, other guests carpool/shuttle from hotel lobbies)

8:15am Poster Review in the Jerry D. Mahlman Lobby (60 min)

9:15am Summary, Wrap-up and Q&A with OAR, GFDL Director, Deputy Director (Room 217)

10:15am Closed session to begin writing (Review Panel in Room 217)

Noon: Review Panel reflections and report out to OAR and GFDL Management (Room 217)

1:00pm **Lunch:** Thank Review Panel and Adjourn (Room 217)