

2005

The Visiting Scientist Program at the National Hurricane Center

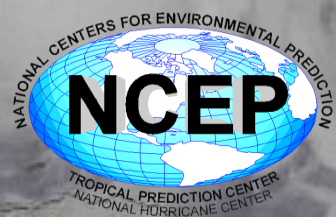
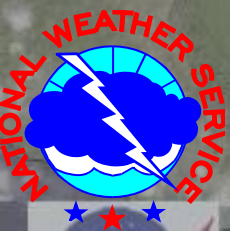
November 2011

HFIP Annual Review Meeting

Katrina Chris Landsea
28 August
National Hurricane Center

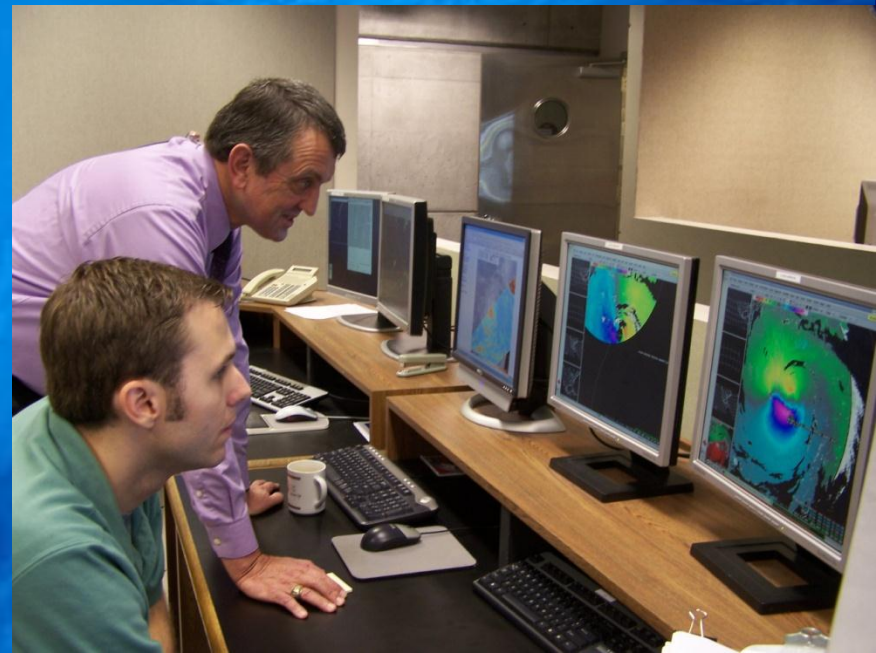
Wilma
21 October

Emily



How does NHC analyze and forecast hurricanes?

How do the forecasters blend the various (surface obs, satellite, and aircraft) observations to derive the TC Vitals? How is a working best track derived? What models are relied upon? What are the time constraints? What is the process of the genesis, track, intensity, and size predictions?...



How does NHC analyze and forecast hurricanes?



Goals for the NHC Visiting Scientist Program

- To facilitate better understanding by researchers/ outside forecasters of the NHC hurricane forecasting process including the tools and techniques utilized by the Hurricane Specialists;
- To open additional dialog between NHC and the research/outside forecast community that could lead to improvements in our analysis and prediction methodologies

Visiting Scientist Program Guidelines

- Program restricted to scientists that have interest/expertise in day-to-day hurricane forecasting operations
- VS shadows the Hurricane Specialists during the swing shift from 7-11pm
 - 7-7:30pm: Digest new model guidance
 - 7:30-8pm: Prepare Tropical Weather Outlooks (and graphics)
 - 8-9pm: Analyze the tropical cyclone (position, intensity, size, structure)
 - 8:30pm: Receive Tropical Analysis and Forecast Branch and Satellite Analysis Branch Dvorak analyses
 - 9pm: Initialize guidance
 - 9-10pm: Generate track, intensity, size, and structure forecasts
 - 10pm: Conference call (for Atlantic tropical cyclones)
 - 10-11pm: Refine analyses and forecasts; write Public Advisory and Discussion
 - 11pm: Release Advisory package and produce graphics

Visiting Scientist Program Guidelines

- ❑ Program restricted to scientists that have interest/expertise in day-to-day hurricane forecasting operations
- ❑ VS shadows the Hurricane Specialists during the swing shift from 7-11pm
- ❑ VS participated with representatives from WFOs, RFCs, NCEPs, government labs, academia, international forecasting centers, private sector, and the media
- ❑ Each VS would participate for one to four days
- ❑ Scheduled developed for participants from late July to October peak of the season
- ❑ VS would not be performing any operational duties

Visiting Scientist Program Guidelines

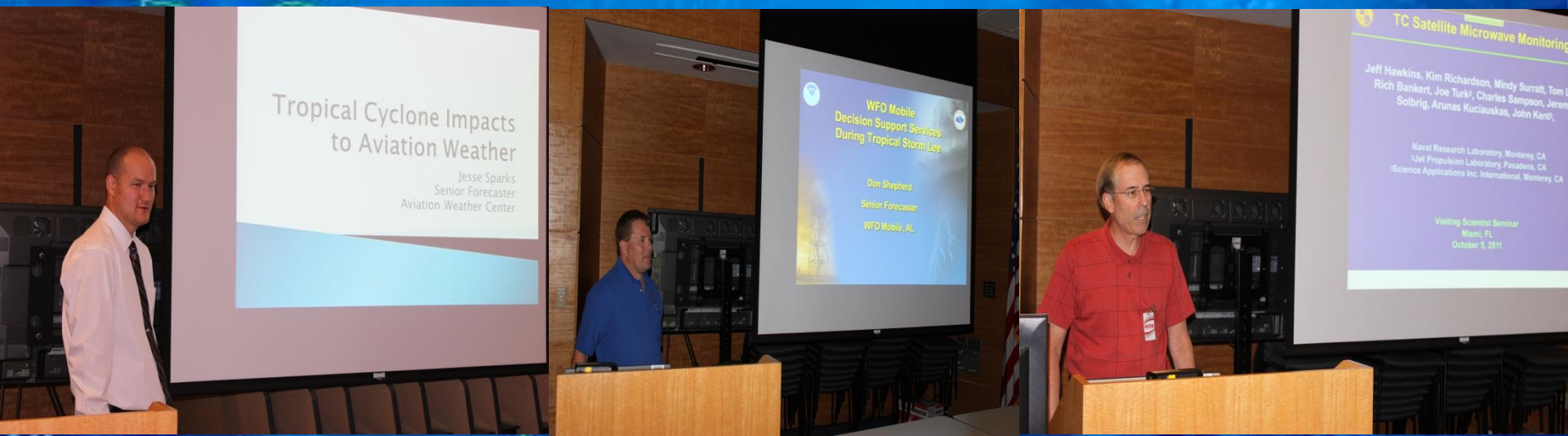
- If a major hurricane threatened the US, the shadowing would be postponed/canceled
- If there were no active tropical cyclones, the shadowing could be postponed and/or shifted to be with forecasters in our Tropical Analysis and Forecast Branch (NHC's marine prediction and Dvorak classifications)
- VS that are in Miami for the full four days spend at least one evening with TAFB forecasters
- VS given opportunity to give a seminar on topic of their choosing
- VS encouraged to visit WFO Miami/HRD/U Miami/FIU if opportunity and interest allowed

2011 Participants

- ☐ **Jeff Hawkins (Naval Research Laboratory)** – Chief Satellite Meteorological Applications Section - TC structure
- ☐ **Lance Bosart (State University of New York – Albany)** – Professor - TC genesis, TC structure, synoptic analysis)
- ☐ **Chris Velden (Cooperative Institute for Meteorological Satellite Studies)** – Senior Scientist – TC intensity analysis
- ☐ **Eric Uhlhorn (Hurricane Research Division)** – Researcher – TC intensity/structure analysis
- ☐ **Omar Garcia (University of Guadalajara/Mexican Air Force College)** – Professor – Storm surge modeling
- ☐ **Don Shepherd (WFO Mobile)** – Senior Forecaster
- ☐ **Marc Bacon (WFO Wilmington)** – Journeyman Forecaster
- ☐ **Alex Tardy (WFO San Diego)** – Warning Coordination Meteorologist
- ☐ **Rich Bann (Hydrometeorological Prediction Center)** - Forecaster
- ☐ **Jesse Sparks (Aviation Weather Center)** – Forecaster
- ☐ **Dan Kottowski (Accuweather)** – Expert Senior Meteorologist
- ☐ **Gina Eosco (AMS)** – Social Scientist
- ☐ **Jennifer Gray (KTBS – New Orleans)** – On-air Meteorologist

2011 Presentations

- ☑ **Dan Kottowski** - "Forecasting at Accuweather"
- ☐ **Lance Bosart** – "An Analysis of Multiple Predecessor Rain Events Ahead of Tropical Cyclones Ike and Lowell: 10- 15 September 2008"
- ☐ **Gina Eosco** - "Cyclones, Cones, and Confusion? A discussion about public understanding of uncertainty and hurricane track graphics"
- ☐ **Jeff Hawkins** - "Tropical Cyclone Satellite Microwave Monitoring"
- ☐ **Don Shepherd** – "Providing emergency management support at a WFO during a hurricane"
- ☐ **Jesse Sparks** – "Tropical Cyclone Impacts to Aviation Weather"



All NHC Visiting Scientist Participants (2007-11)

Academia:

Professors/Researchers: Lance Bosart (SUNY-Albany – 2011), Liz Ritchie (UArizona – 2010), Rich Yablonsky (URhode Island – 2010), Jim Kossin (UWisconsin/NCDC – 2010), Bob House (Washington - 2008)

Grad Students: Mark Jelinek (Georgia Tech - 2009), Kevin Talgo (NCSU – 2008), Jon Moskaitis (MIT – 2008)

Government Labs:

Hurricane Research Division: Eric Uhlhorn (2011), Paul Reasor (2010), Rob Rogers (2009), Shirley Murillo (2008), Sim Aberson (2008), Mark Powell (2007), Sylvie Lorsolo (2007), Gopal (2007), John Kaplan (2007), Jason Dunion (2007), Stan Goldenberg (2007)

Cooperative Institute for Research in the Atmosphere: John Knaff (2009), Andrea Schumacher (2008)

Cooperative Institute for Meteorological Satellite Studies: Chris Velden (2011)

Naval Research Laboratory: Jeff Hawkins (2011), Jim Hansen (2008)

International Forecasters:

Omar Garcia (Mexico – 2011), Kimberley Zuill (Bermuda – 2009), Chris Fogarty (Canada – 2008)

All NHC Visiting Scientist Participants (2007-11)

National Environmental Modeling Centers:

Hydrometeorological Prediction Center: Rich Bann (2011), Mike Musher (2010),
David Novak (2009)

Environmental Modeling Center: **Hendrik Tolman (2010)**

Aviation Weather Center: Jesse Sparks (2011)

Central Pacific Hurricane Center: Tom Birchard (2009)

Weather Forecast Offices:

Eastern Region: Marc Bacon (Wilmington – 2011), David Wally (New York –
2010), Jim Hudgins (Blacksburg – 2009), Robert Bright (Charleston – 2008)

Southern Region: Don Shepherd (Mobile – 2011), Ernesto Morales (San Juan – 2010),
Peter Wolf (Jacksonville – 2010), Jeral Estupinian (Brownsville – 2009),
Andy Devanas (Key West – 2008)

Western Region WFO: Alex Tardy (San Diego – 2011), Erik Pytlak (Tucson – 2008)

Other NOAA Agencies:

River Forecast Center: Greg Waller (West Gulf – 2009)

Satellite Analysis Branch: Greg Gallina (2010), Mike Turk (2009)

National Ocean Service: Jesse Feyen (2009)

All NHC Visiting Scientist Participants (2007-11)

Private Sector:

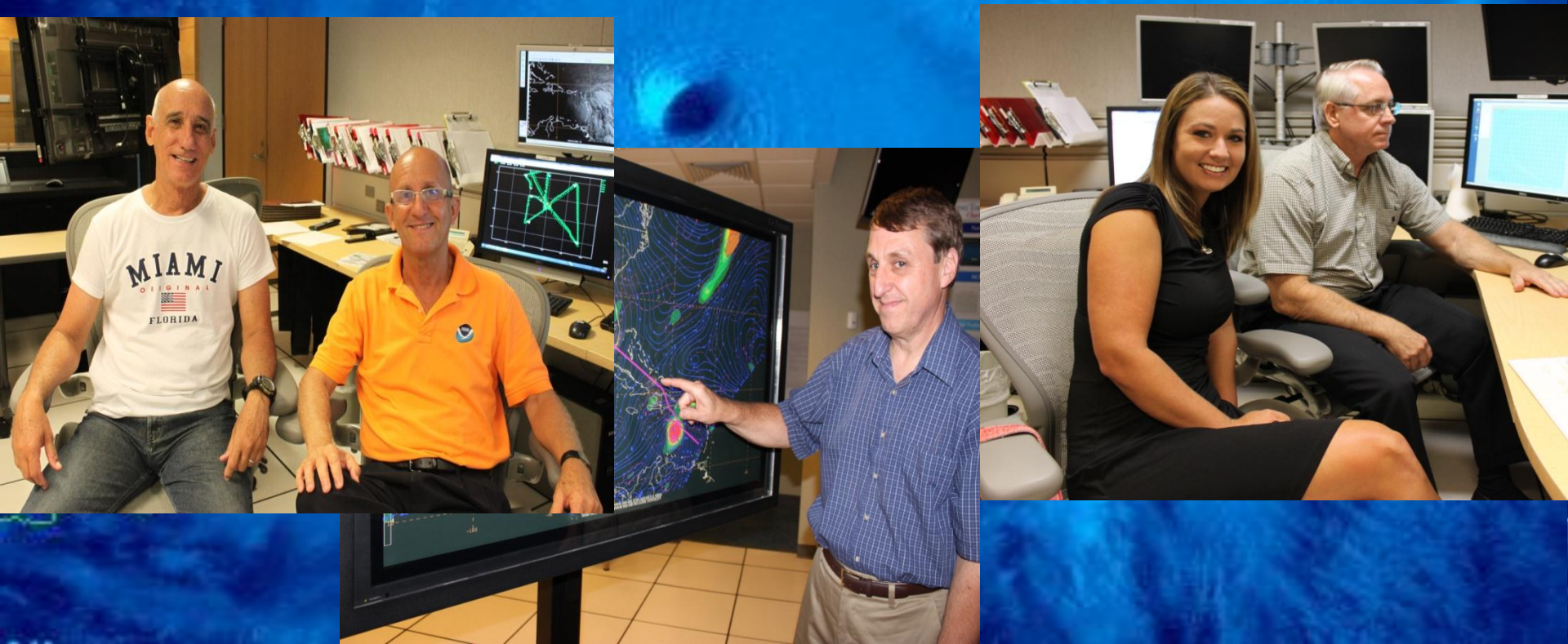
Dan Kottowski (Accuweather – 2011), Jeff Masters (Weather Underground – 2010)

Media:

Jennifer Gray (2011 - KTBS, New Orleans)

Social Scientists:

American Meteorological Society: Gina Eosco (2011)



2011 Visiting Scientist Comments

“I'd like to take a moment to thank everyone for the opportunity to be part of the NHC Visiting Scientist program! Being able to watch and participate in the real-life genesis forecasts, starting an invest, 1st warnings on a depression and the myriad of forecast dilemmas for tropical storms and hurricane Philippe in multiple basins was educational, fun, and humbling...

I'll admit I heard umpteen times how ‘time was critical’ in the warning process, but now I can better appreciate the ‘process’ and have multiple ideas on ways to make the NRL TC web products more readily ‘announced’.”

Jeff Hawkins

2005

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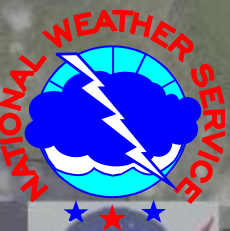
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Visiting Scientist Programs within HFIP and NWS/NCEP

The logo for the Hurricane Forecast Improvement Project (HFIP) features the NOAA logo on the left, followed by the text "HURRICANE FORECAST IMPROVEMENT PROJECT" in a bold, sans-serif font. A red, stylized hurricane symbol is positioned between the words "FORECAST" and "IMPROVEMENT". The background of the logo is white with a subtle pattern of concentric, overlapping ellipses.

Summer of 2008, the HFIP plan included: “to support research and technology development and training activities for external community at NOAA operational facilities (e.g., **visiting scientists**, Post-Docs, graduate students, professors)”



Spring of 2008, the NCEP Strategic Plan included: “expand the **visiting scientist program** at NCEP to leverage from the external community”