

8-29-2012

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## Repository Citation

Turner, N. E., Murtagh, W., Guthrie, K., Nykyri, K., Radasky, W. A., & Senkowicz, E. (2012). Florida energy assurance plan. *Space Weather*, 10(8).

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Published: 29 August 2012

**Citation:** Turner, N. E., W. Murtagh, K. Guthrie, K. Nykyri, W. A. Radasky, and E. Senkowicz (2012), Florida Energy Assurance Plan, *Space Weather*, 10, S08015, doi:10.1029/2012SW000834.

## Statewide Workshop and Exercises

This spring, Florida held the nation's first statewide emergency preparedness training and exercises geared specifically to the aftermath of severe geomagnetic events. Funded by the State of Florida Division of Emergency Management (FDEM) via a Department of Energy grant and held in collaboration with Watch House International, Inquesta Corporation, and the Florida Institute of Technology, the 17–19 April 2012 workshop had 99 on-site attendees in an oceanfront hotel in Melbourne, Florida, as well as 16 over live Web streaming. The workshop was the capstone to a three-month season of 21 regional space weather training sessions and workshops serving 386 attendees in total. Participants included emergency managers, law enforcement officers, emergency medicine practitioners, and private industry stakeholders, including representatives from utility and telecommunications companies.

The three-day statewide workshop began with one day of education and targeted training, featuring space weather experts in government, academia, and private companies, as well as the regional utility grid reliability organization. The following two days were devoted to a tabletop exercise where participants, divided into groups by area of responsibility, worked through an evolving scenario of space weather–related events, running through their preparedness plans and examining responses.

## Why Florida?

According to William Bryan, deputy assistant secretary for infrastructure security and energy restoration in the U.S. Department of Energy, who opened the event, “Florida has been and remains a leader in emergency preparedness.” Florida emergency managers already train for hurricanes every year, but this space weather exercise provided training for geomagnetic events and more generally helped strategize for issues of longer and more widespread power outages and the

related communication, law enforcement, and health difficulties that could result.

## Regional Workshops

Prior to the statewide event, the seven emergency management regions of Florida were each given three smaller-scale training opportunities, including a webcast with an instructional movie about space weather; a short webcast presentation by Niescja Turner, a professor of physics and space sciences at the Florida Institute of Technology; and an on-site workshop with a tabletop exercise. Each session was planned as an independent event, so participants could attend any or all regional or statewide events.

## Education Component

The Florida workshop was unlike traditional emergency preparedness workshops in that a full day of instruction preceded the tabletop exercise. During the education day, participants heard talks by experts on the science, operations, and power grid vulnerabilities associated with space weather.

Niescja Turner gave a presentation about the science of magnetic storms, space weather, and radiation-related phenomena. She discussed the precursors and the development of space weather phenomena, including solar flares, coronal mass ejections, and their subsequent effects on Earth (Figure 1). Turner went over the possible consequences of geomagnetic disturbances and addressed some misconceptions, such as conflating a magnetic storm with, for example, an electromagnetic pulse.

Operational issues and warning systems were addressed by Bill Murtagh, program coordinator at the NOAA Space Weather Prediction Center (SWPC). Murtagh discussed the NOAA space weather scales and advised the participants, particularly those in emergency management, on which SWPC alerts would be most helpful to them. He also provided guidance on the suite of alert systems and information available

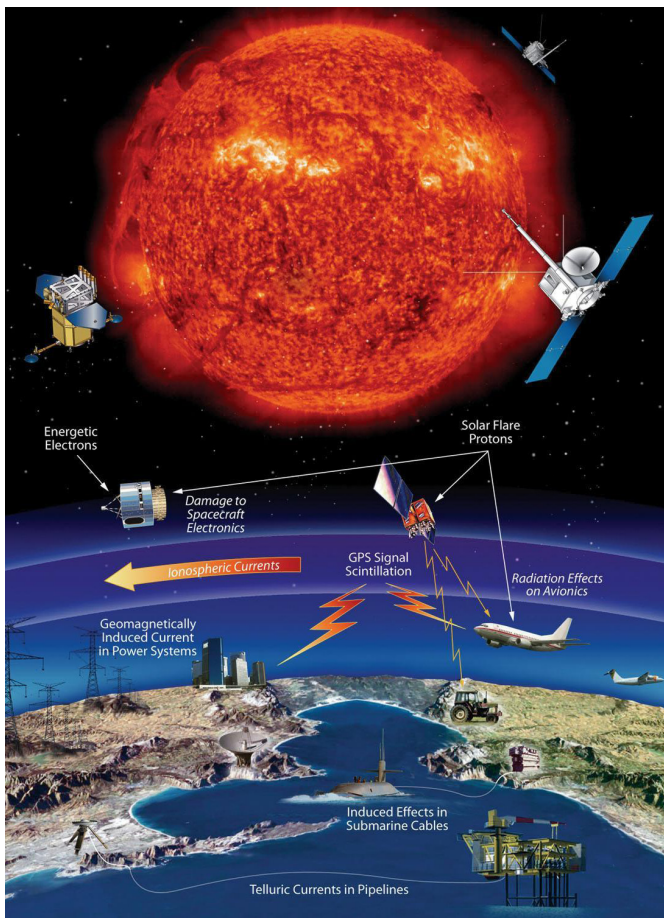


Figure 1: In the Sunshine State, emergency managers considered the effects of space weather on critical infrastructure. Courtesy of NASA.

online.

Bill Radasky, president of Metatech Corporation, spoke about Metatech's extensive modeling of geomagnetically induced currents and simulated effects on the nation's power grid. He was followed by Eric Senkowicz, director of operations for the Florida Reliability Coordinating Council, a regional entity of North American Electric Reliability Corporation (NERC). Senkowicz discussed the findings and recommendations set forth in the latest NERC report on geomagnetic events. He presented some details specific to Florida's power grid, including the locations of high-voltage lines and why Florida's grid may not be affected as much due to its southerly location. Together, these talks gave the emergency managers some perspective about power grid vulnerabilities and the uncertainties surrounding the effects of geomagnetically induced currents on the grid.

The education day concluded with a panel discussion featuring the day's speakers along with Charlie Craig, emer-

gency manager for Volusia County, and Katariina Nykyri, a professor of physical sciences at Embry-Riddle Aeronautical University in Daytona Beach.

### Tabletop Exercises

One and a half days were devoted to tabletop exercises for the participants. Attendees were given an evolving scenario of a G5 magnetic storm and related effects. The scenario, facilitated by master exercise practitioner Kevin Guthrie, was one of a "double storm," where one event follows closely on the heels of another. In the scenario, Florida initially responded to its own troubles with power and communications and later prepared to act as a host to people from the northeast who, faced with the prospect of an extended electricity outage (perhaps lasting for months), temporarily relocated to Florida because of its speed in restoring electrical power.

The exercises, while using a severe geomagnetic storm as the catalyst, were intended as an opportunity for Florida's emergency managers to critically examine their plans and procedures to deal with a widespread energy and communication blackout. Given the interdependencies of necessary infrastructure, the exercise portion continually led participants into areas they had not initially considered.

### Looking Forward

To follow up on lessons learned from the workshop, the FDEM is producing both an after-action report and an improvement plan for statewide operations. Local emergency managers operate independently from the state and can re-evaluate emergency preparedness plans if they choose, and many expressed an interest in doing so.

### Acknowledgments

This program was funded through the State of Florida Division of Emergency Management via an Energy Assurance grant from the Department of Energy. The authors acknowledge Mike McElroy of FDEM and thank Watch House International, a certified small business specializing in all facets of emergency management.

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