Schneider Electric North America

Boston, Massachusetts

Testimony of Jim Block, Chief Meteorological Officer, Weather Division,

Schneider Electric

IN SUPPORT OF PUBLIC-PRIVATE PARTNERSHIPS FOR IMPROVED

WEATHER FORECASTING

Before the House Committee on Science, Space, and Technology on June 8, 2016

Summary:

We offer the following recommendations to drive public-private partnerships and help deliver the best results to communities and taxpayers:

- There should be more, and more effective, cooperation between NOAA and the private sector.
- NOAA should place more emphasis on the use of existing data sets from commercial sources.
- NOAA should eliminate Decision Support Services that duplicate those available in the private sector.

Chairman Bridenstine, Ranking Member Bonamici, I appreciate the invitation to testify today on the opportunities that commercial weather services are able to deliver to improve weather forecasting and further the goals of NOAA, the National Oceanic and Atmospheric Administration.

My name is Jim Block, and I am a Fellow of the American Meteorological Society, and a Certified Consulting Meteorologist at Schneider Electric.

Schneider Electric is a global Fortune 300 company with 170,000 employees world-wide, $30 billion in sales, and operations in more than 100 countries. Schneider Electric is a specialist in energy management and automation offering integrated solutions across multiple market segments, including Commercial and Residential Buildings, Industrials & Machine Manufacturers, Utilities & Infrastructure, and Data Centers & Networks. We maintain the largest commercial business-to-business weather forecasting and consulting organization in the United States, providing accurate weather forecasting and auxiliary services to 15,000 customers all over the world. We utilize more than 80 separate data sources, including NOAA.

We innovate and develop specialized technology to take the NOAA data and add value by fine-tuning it and aligning it to specific customer needs.

Following are a few examples of real solutions we offer our customers today:

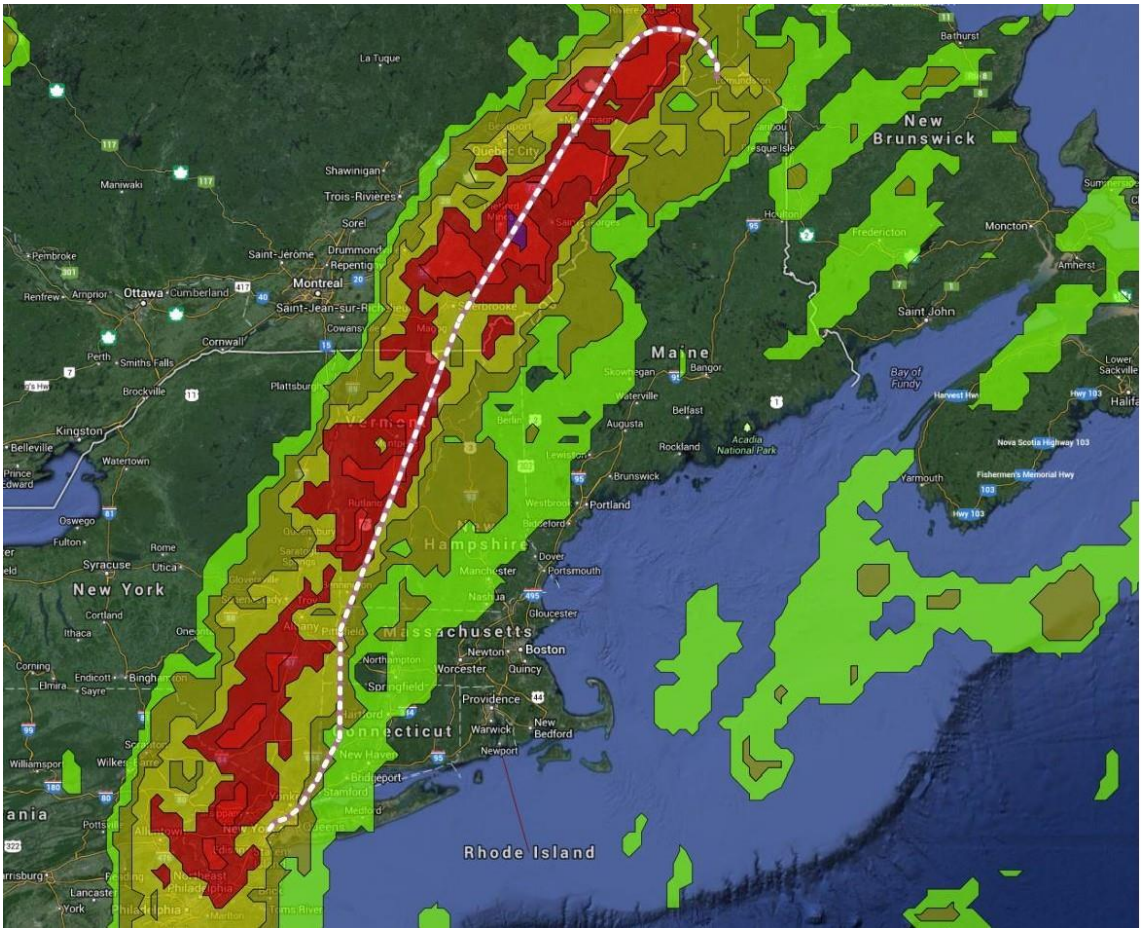
Agriculture: We provide the weather information in the DTN and Progressive Farmer services. We recently deployed a network of almost 3,000 weather and soil sensors at farms, to help farmers make better day-to-day crop production decisions. This intelligence could also be useful to NOAA for future tornado prediction models.

Utilities: We provide services to most large electric utilities such as Florida Power and Light, to predict demand changes relative to weather conditions, and also work with other utilities in what is called “mutual assistance” so they can share work crews for faster power restoration. We also help weather-enable the newest generation of Smart Grid solutions to further optimize the nation’s electrical grid.

Transportation: In the northern states we make road and pavement forecasts and provide specific guidance of what chemicals to use -- just enough to do the job so that it is both cost effective and environmentally conscious.

Aviation: In Aviation we provide specific forecasts for airlines, including a new turbulence forecast that can predict the location and the effect of turbulence by aircraft type (e.g. Boeing vs. Airbus). An independent laboratory found that our forecast was 20% more accurate with 70% fewer false positives than what the FAA currently uses. We believe there is an opportunity to take advantage of this private sector technology in the modernized airspace system envisioned by the FAA with NextGen.

Turbulence forecast map



Sports: Parts of the southern U.S., such as Florida, have some of the most lightning activity of anywhere in the world. We provide services to the PGA TOUR for lightning safety, along with weather safety information to 350 colleges and universities.

Public Safety: We also provide over 1,000 state and local public safety organizations with weather alerts and forecasts, for uses as varied as urban flooding to planning for severe heat spells.

Currently, commercial weather services like Schneider Electric's focus on "down-stream" utilization of NOAA data in our solutions to solve specific end-user problems. Conversely, NOAA provides general forecasts and warnings for the overall protection of life and property, along with the observations and numerical weather prediction services that support those activities. This division of services between the private and public sectors of weather is very efficient, and serves the American taxpayer very well. However, it requires cooperation and communication between NOAA and companies like Schneider Electric to work effectively.

Some critics may question the need for a government weather agency at all; however, we strongly disagree. No commercial entity can operate the infrastructure of weather data collection, numerical weather prediction, and universal dissemination that NOAA operates today. At the same time, we also strongly believe the private sector is best placed to use NOAA data to serve the end-use customer. In our view, the multitude and diversity of end-user projects can only be addressed by companies like ours and others, using information from NOAA and other sources.

We offer the following recommendations to drive public-private partnerships and help deliver the best results to communities and taxpayers.

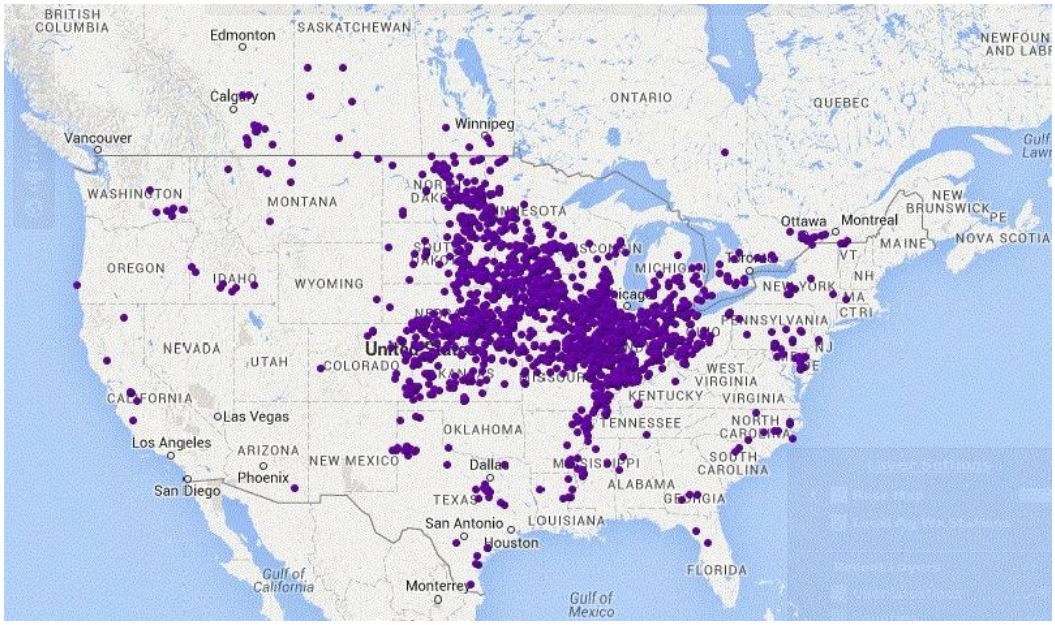
1. There should be more, and *more effective*, cooperation between NOAA and the private sector.

   We believe that strong cooperation between NOAA and the private sector is necessary and long overdue. Currently, there is an Environmental Information Services Working Group (EISWG), but its role and impact within NOAA clearly needs to be strengthened, as EISWG appears to have little effect on NOAA practices. We remain agnostic as to whether a new entity, or an improved EISWG is a better choice, but one thing is clear – NOAA should leverage the examples of other agencies and have a regular committee or working group that

includes permanent private sector members. Those private sector members should be included from the business-to-business community, as well as the consumer sector.

2. NOAA should place more emphasis on the use of existing data sets from commercial sources.

We believe there is need to look at the relationship between NOAA and downstream service providers, such as Schneider Electric. Those of us who provide weather information to utilities, airlines, farmers, and others strongly benefit from a closer partnership with NOAA. We believe that NOAA can benefit from our specialized data and knowledge of weather information end users. For example, Schneider Electric has built, and now operates, the largest agricultural weather network in the U.S. The Schneider Electric Ag Weather Network consists of more than 4,600 weather stations located on farms, where we collect and manage weather data that is used by farmers to make critical decisions on a daily basis. This information could be a tremendously useful to NOAA.



Nation's Largest Agriculture Weather Station Network (4,600 stations)

A regular and formal meeting or forum between government and the private sector can make NOAA and other government agencies aware of datasets that have been developed by commercial services, with enough technical detail to allow for legitimate evaluation by government agencies. NOAA should provide honest and objective evaluation of these data sets for potential use in their R&D.

3. NOAA should eliminate Decision Support Services that duplicate those available in the private sector.

NOAA should refrain from over extending its scope beyond data sets and severe weather warnings. We believe the private sector can and should collaborate with NOAA on any downstream user or business services, with clear role delineation. For example, NOAA has now started providing road and pavement forecasts that are a complete duplicate of forecasts that have been provided by the private sector for over 30 years. Specialized services like this have a marginal benefit to the public, adversely impact the private sector's ability to innovate and compete, and needlessly tie up tax payers dollars (that could be utilized elsewhere) on offers that are already available in the private sector. Closer cooperation with NOAA could avoid such situations.

Government agencies that utilize weather information in their internal processes should be required to review and assess feasibility of use of commercially developed solutions if/when superior results can be achieved. Example: Schneider Electric's new generation turbulence and aircraft icing solutions should be reviewed by the FAA for potential use in upgrading national airspace safety. This solution could be further improved by full use/integration of NOAA modeling input.

We understand and support NOAA's core mission of monitoring the environment, and protecting the public. We believe that NOAA's mission can be enhanced and can be more cost-effective if NOAA works more closely with the private sector, uses datasets from outside sources such as the Schneider Electric Ag Weather network, and eliminates duplicative services.

We commend the committee for considering our recommendations, and thank you for the opportunity to speak to you today.

Jim Block
Chief Meteorological Officer

Jim Block is a Certified Consulting Meteorologist, one of only 285 in the world, with over 35 years of experience in commercial meteorology. At Schneider Electric, Jim is currently responsible for all of the weather and forecast content used in the weather products and services provided by Schneider Electric. This includes products used every day by over 100,000 businesses to make critical decisions. In 2010, Block was elected as a Fellow by the American Meteorological Society, an honor given to less than 0.2% of the membership of the Society.

Over his career, Block has led efforts to make weather forecast information useful and usable in real-world applications, especially in the energy, aviation, and agriculture industries. He has participated in the development of many capabilities pioneered at Schneider Electric and its predecessor companies, including:

- An aviation turbulence and icing forecast system for flight planning systems (patented)
- A nationwide real-time radar composite, updated every 5 minutes
- Ground Corrected Altitude Based remapped satellite images (patented)
- The first three-dimensional satellite image (patented)
- Drift down algorithm for two engine commercial aircraft (patented)
- The first commercial thunderstorm tracking display
- The first fly-through satellite images available commercially
- The integration of weather information into Geographical Information Systems (GIS)
- Alerting systems that use mobile technology to alert users of impending weather (patented)

James H. Block
Schneider Electric Weather - Director of Weather Content
Curriculum Vitae

Personal

- Address: 11400 Rupp Drive, Minneapolis, MN 55337
- Telephone: (952) 882-4521 (work), (952) 250-3716 (cell)
- Place/Date of birth: May 3, 1955 / Watertown, WI, USA

Professional Service:

- Chief Meteorological Officer, Schneider Electric, 2016-present
- Director of Weather Content, Schneider Electric, 2015
- Managing Director of Weather Systems Netherlands, Schneider Electric, 2013-2014
- Chief Meteorologist, Telvent, 2000-2012
    - Product Manager – Aviation Services 2001-2012
    - Product Manager – Agriculture Services 1998-2012
- Vice President of Systems Development, Kavouras, Inc., 1987-1999
- Director of Meteorological Development, Kavouras, Inc., 1984-1987
- Director of Meteorology, Kavouras, Inc., 1981-1983
- Meteorologist, Republic Airlines, 1981
- Forecaster, Great Lakes Weather Service, 1979-1980

Education:

- BS – Meteorology, University of Wisconsin-Madison, 1977
- MS – Meteorology, University of Wisconsin-Madison, 1979

Certifications and Honors:

- Certified Consulting Meteorologist (CCM) Certificate #441, 1989
- Elected as a Fellow of American Meteorological Society, 2010

Professional Organizations

- American Meteorological Society (AMS)
    - Member, Ad-hoc Committee on Implementation of a National Mesoscale Network of Networks, 2009-2010
    - Member, Ad-hoc Committee on Mobile Applications in Transportation, 2009-2011
    - Member, Committee on Intelligent Transportation Systems, 2007-2010
    - Chairman, Board for Private Sector Meteorologists, 2004-2007
    - Radio Broadcast Seal of Approval, AMS, 1981
    - Member, 1979-present
- National Council of Industrial Meteorologists (NCIM)
    - President, 2002
    - Board of Directors, 2001-2004
    - Member, 1989-present
- Commercial Weather Services Association
    - Treasurer, 1999-2002
    - Board of Directors, 1997-2003
    - Member, 1996-2003

Appointments:

- National Research Council, Developing mesoscale meteorological observations to meet multiple national needs, 2007-2008
- Friends/Partners of Aviation Weather, Panel Champion, 2009, Users Panel, 2006-2012
- Review Committee, Geospatial Environmental Observing System of Systems (GEOSS), 2004
- Organization Committee, AMS First Users Conference, Seattle WA 2004
- Advisor to United States delegation at World Meteorological Organization Executive Council 2002.
- International Data Exchange Working Group, 1996-2000
- National Weather Service Family of Services Working Group, 1985-2000

Publications

- A scalable solution for creating Terminal Aerodrome Forecasts, 12th Conference on Aviation, Range, and Aerospace Meteorology, January 2011
- Observing weather and climate from the ground up: A nationwide network of networks, National Academy of Science Report, November 2008
- Lightning Support for Public Safety, 19th International Lightning Detection Conference, April 2006
- Integrating New Weather Technology in Forecast Operations at Telvent – A New Paradigm, 22nd International Conference on Interactive Processing Systems in Meteorology, Hydrology, and Oceanography, January 2006
- Enhanced Precipitation Products – The New World of Radar-Derived Products for Commercial Applications, 21st International Conference on Interactive Processing Systems in Meteorology, Hydrology, and Oceanography, February 2005
- Weather Enabled Decision Support Systems, 20th International Conference on Interactive Processing Systems in Meteorology, Hydrology, and Oceanography, January 2004
- The Private Sector in Meteorology in 2003, 19th International Conference on Interactive Processing Systems in Meteorology, Hydrology, and Oceanography, February, 2003
- Commercial Applications of GOES, Proceedings from GOES Users Conference II, October, 2002
- Commercial weather services for surface transportation, ITS America 2002 Annual Meeting, May, 2002
- Managing the collection and dissemination of non-homogenous data from numerous, diverse, geographically scattered sources, OFCM Workshop on Data Sharing, December, 2001
- Visualization techniques applied to meteorological data to enhance understanding by the general public, WMO Congress, May, 1995
- Hurricane Hugo real-time four-dimensional digital satellite imagery with computer generated derived parameter analysis, 21st Conference on Broadcast Meteorology, June, 1990
- Operational utilization of ground-corrected altitude-based remapped satellite imagery, 6th International Conference on Interactive Processing Systems in Meteorology, Hydrology, and Oceanography, January 1990

- The dissemination of aviation weather information, 3rd International Conference on the Aviation Weather System, January 1989
- The Weatherlink VISTA system – A meteorological briefing station, 3rd International Conference on Interactive Processing Systems in Meteorology, Hydrology, and Oceanography, January 1987
- The operational use of real-time LPATS lightning data on interactive graphics systems including CSIS, the Centralized Storm Information System,, 3rd International Conference on Interactive Processing Systems in Meteorology, Hydrology, and Oceanography, January 1987
- The impact of private meteorology on private aviation, 2nd International Conference on the Aviation Weather System, July, 1986