NOAA Looks for Advice to Make Its Data Easier to Use

"There is no sector in American business that wouldn't like to have better environmental information," said Joseph Klimavicz, chief information officer for the National Oceanic and Atmospheric Administration (NOAA).

The agency collects an enormous amount of data from its satellites, ships, aircraft, and other instruments and is looking for ways to make the data more readily available to business sectors ranging from energy and gas to insurance and finance to agriculture and aquaculture, Klimavicz told *Eos*.

NOAA has issued a request for information (RFI) from industry and other organizations—including research laboratories and universities—for ideas on how to better make use of this potential treasure trove of data. The RFI, issued on 24 February, asks for information by 24 March "to determine whether capability and interest exists for establishing partnerships with NOAA for the purpose of intelligently positioning NOAA's vast data holdings in the cloud, to be colocated with easy and affordable access to computing, storage, and advanced analytical capabilities."

The NOAA initiative follows a 9 May 2013 White House executive order, "Making Open and Machine Readable the New Default for Government Information."

The RFI is intended to inform NOAA about the current state of industry sources, business practices, technical capability, and operational capability as well as to inform the agency on the feasibility of partnering with one or more industry partners "using no-cost agreements," the RFI states. "NOAA is looking for partners to incite creative uses and innovative approaches that will tap the full potential of its data, spur economic growth, help more entrepreneurs launch businesses, and to create new jobs."

"We are a classic big-data agency," Klimavicz said, noting that about 100 petabytes of environmental data currently are stored in NOAA data centers—and that number is increasing by 30 petabytes a year—but only about 10% of the data are available on NOAA websites. He said that the agency has been trying to manage the data as best it can. "But it gets harder and harder, and the volume keeps increasing," he said.

Klimavicz explained, "If we can essentially free the data and get it out there in a robust infrastructure, and do that without asking the taxpayers to pay any more money—they already pay for the collection of the information—that's why the RFI is out there." He said the RFI is not only about getting the information out but also represents a change of business model. "We are looking at seeing if we can establish a private, collective model where the private sector collectively invests in creating sustainable methods to extract NOAA data, move to the cloud, and then position it with computer storage and advanced analytics."

Some of the current hurdles to using NOAA data include locating it, Klimavicz said, and then having the time and resources to download what, in some cases, can be large databases of perhaps 100 terabytes that might be updated daily.

Klimavicz said he measures the successful use of NOAA's data according to "how this information has been turned into economic value."

"I don't think that moving the bits [of data] to the cloud or several different clouds is really the impact that I'm looking for" with the RFI, he said.

"I'm looking for new businesses that haven't even been developed yet to flourish," he said. "What we are hoping, after we get the information out, [is] that we can help the economy in terms of creating new businesses. We are familiar with the Climate Corporation and the Weather Company and what they have done, but we think many more businesses can be created and jobs created by making this information easier to use and access."

Klimavicz said he anticipates that the RFI will solicit widely differing views on how to proceed. He added that a goal, once the agency has reviewed responses to the RFI is for NOAA to issue a request for proposals by the end of the fiscal year.

For more information, see http://1.usa.gov/ 1fyCCC2.

-RANDY SHOWSTACK, Staff Writer

Memo

Date: March 28, 2014

TO: David.Zhang@noaa.gov Denise.e.Harper@noaa.gov

FROM:Earl F. Burkholder, PS, PE, F.ASCEemail: eburk@globalcogo.comPresident – Global COGO, Inc.url: www.globalcogo.comP.O. Box 3162tel: (575) 532-6184Las Cruces, NM 88003tel: (575) 532-6184

RE: Response to RFI "BIG DATA"

This memo is in response to:

- The RFI item NOAA included in EOS, Vol. 95, No. 11, 18 March 2014.
- <u>https://www.fbo.gov/index?s=opportunity&mode=form&id=d9844cb78b4527fb11a6ac6d2b80a7</u> <u>42&tab=core&_cview=0</u>.

(From this web page, click on link -middle left - to view most recent modification.)

It certainly is an understatement to say that BIG DATA represent a huge challenge. The following comments are directly related to a simple rigorous standard for geospatial data. The global spatial data model (GSDM) described herein accommodates any/all uses of geospatial data in all disciplines worldwide.

The best thing NOAA can do is adopt a standard model that accommodates 3-D digital geospatial data and supports continued use of any/all derivative (existing) models.

- Geospatial data are digital and 3-D (if accommodating time, spatial data are 4-D).
- The GSDM is built on an assumption of a single origin for geospatial data.
- The computational environment is the earth-centered earth-fixed (ECEF) rectangular coordinate system devised by the DoD to track GPS (now GNSS) satellites.
- All positions worldwide are computed using proven rules of solid geometry.
- The GSDM includes both:
 - A functional model that describes geometry and position.
 - A stochastic model that keeps track of spatial data accuracy.
- Existing coordinate positions (geodetic, UTM, state plane, etc.) are supported.
- Technical details of the GSDM have been published and proven.
- The following links provide additional information:
 - Numerous articles on the GSDM <u>http://www.globalcogo.com/refbyefb.html</u>
 - Definition of GSDM http://www.globalcogo.com/gsdmdefn.pdf
 - Challenge for user community <u>http://www.globalcogo.com/challenge.pdf</u>
 - Example of current research <u>http://www.globalcogo.com/StdDevLocalNetwork.pdf</u>
 - Book on the 3-D GSDM Google "global spatial data model" to find sources.

I am a retired geomatics professor and Global COGO, Inc. has no permanent employees. Current activities include promoting use of 3-D digital geospatial data as I can. Just like "BIG DATA," the potential impact is huge. See - <u>http://www.globalcogo.com/efbresume.pdf</u>