U.S. Drought Monitor Forum
W Palm Beach, FL
April 16-18, 2013

USDA Update – Data, Products, and Services

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USDA – World Agricultural Outlook Board
At the last USDM Forum (April, 2011) held in Washington, D.C...
2011 Wish List
2011 Wish List

Short Answer: No, Not yet
Geotiffs from NOHRSC?

No geotiffs, but data in "*.bil" format does display in GIS
Shapefiles for Groundwater Percentiles (Google, Yes; GIS?)

Yes, but the actual percentile is not given, but rather a color-code and corresponding range.
2011 Wish List

Geotiffs of AHPS data (point shapefile is slow to load)

No, but in-house programming (Brian Morris) solved the issue; Geotiffs are now automatically created daily at USDA using Python programming language.
Shapefiles for NRCS datasets

Yes (sort of); Data in CSV format, and once linked will display automatically in ArcMAP

Report Date:
APRIL 7, 2011

Tabular Report --- Basin Snow Water Content Map (Numeric)
Basin Precipitation Map --- Basin Precipitation Map (Numeric)
2011 Wish List
2011 Wish List

- Hi-res SPI; Still hoping
- *.bil displays (very large filesize)
- Would like value vs color
- Geotiff (in house)
- CSV
Other Key Additions…
Other Key Additions: Python Scripting

The Python Scripting Language has increased automation, and the weekly US-Maps.ppt is now generated much faster.
Other Key Additions: Python Scripting

Python automation (map generation, NOT data download and storage) has also led to the creation of sub-regions which aid in the USDM editing process.
Other Key Additions: SNOTEL

SNOTEL in CSV format (GIS readable) has helped authors with western drought depiction.
Coupled with GIS WMS background maps, we can zoom in and see detail not previously available.

Other Key Additions: SNOTEL
Many thanks to all at NESDIS who implemented the 4-km VHI at the request of Rosencrans (CPC) and yours truly.
The 16-km VHI, as the US drought and heat wave peaked
Vegetation Health Index (4 km)

July 23, 2012

Legend:
- Lush/Saturated
- Favorable
- Fair
- Poor
- Bare/Stressed

Same, but at 4 km
Must be aware of product limitations and uses; the 4-km VHI proved very useful for US and International Drought weather-crop assessments, but knowing crop phenology is key.
This data also helped with my int’l AOR, with widespread corn yield losses ultimately noted from Spain into Italy, the Balkans, and Ukraine, while Russia and Kazakhstan wheat took a huge hit. The VHI nailed it. Now back to the US…
Perhaps one of the key additions was courtesy of Keith Eggleston, Regional Climatologist with the Northeast Regional Climate Center (NERCC), who responded to my request for a single-source pcp station data file.
Other Key Additions: NERCC Station Data

The text file contains Precipitation & Precipitation Departure at 7, 30, 60, 90, and 180 days, as well as month-, year-, and water-year-to-date information.
Other Key Additions: NERCC Station Data

It is a single source of all available types, including CoCoRaHS!
Other Key Additions: NERCC Station Data

To add flexibility, Excel is used to clean the data and add a “percent of normal” for each time period.
For GIS users, ArcMAP looks at the first 6 rows to determine data type for each field; your best bet – to avoid an “M” creating a problem – is to insert 6 “dummy” lines which set the columns to the correct data type. This allows you to import, interpolate, and analyze all fields in GIS.
Here is the derived 90-day pcp plot for the lower Southeast.
Note: QC is up to the user/author!
Going forward, we will now be able to cross-reference the AHPS data (shaded background) with station data.
In areas where radar-based pcp observations are suspect, the new single-source station data will help authors immensely.
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Time-of-year and radar-specific biases can also be more readily accounted for by authors.
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This data will also aid the USDM authors in their write ups and media requests.
This additional source of Water-Year information will aid drought depiction in the western U.S.
And the station data will also serve as ground truth when compared to the AHPS short-term rainfall amounts, which are often used to show short-term drought improvement.
And the station data will also serve as ground truth when compared to the AHPS short-term rainfall amounts, which are often used to show short-term drought improvement.
In summary, this station data will serve authors very well, with many thanks to Keith Eggleston at NERCC!
One new key contribution from USDA (Harlan Shannon) was to use crop area shapefiles (from USDA-NASS) and the USDM shapefiles to extract and publish crops-in-drought statistics on a weekly basis.
The crop-drought map only uses D1 (Moderate Drought or greater) since differentiating the various drought classes would make for a very busy, hard-to-read map.

Approximately 84% of the corn grown in the U.S. is within an area experiencing drought, based on historical NASS crop production data.
A national breakdown of the different drought categories is provided as a timeseries.
Approximate Percentage of Corn Located in Drought *
September 11, 2012

Crop production percentages and associated drought intensities

- Percent in Moderate Drought (D1)
- Percent in Severe Drought (D2)
- Percent in Extreme Drought (D3)
- Percent in Exceptional Drought (D4)

* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at http://www.drought.unl.edu/dm/monitor.html.

A state-by-state breakdown is also provided, ranked from largest to smallest in terms of crop production.

State contributions to national production (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 5-year averages from 2006-2010. More information on NASS data can be found at http://www.nass.usda.gov/.
Highlights for the drought-monitoring period ending 7 am EST on January 22 include:

- Overall U.S. drought coverage decreased to 57.64% of the contiguous U.S., down 1.23% from last week and down 5.01% in the last eight weeks. Last week’s decrease came on the strength of additional heavy precipitation (rain and snow) in the lower Midwest and the Southeast—excluding the southern Atlantic region.

- The portion of the contiguous U.S. in the worst category – D4, or exceptional drought – was nearly steady at 6.36%. D4 coverage has ranged from 5 to 7% for 24 consecutive weeks (August 14 – January 22).

- The percent of hay in drought (59%) and cattle in drought (68%) fell two percentage points from a week ago. Winter wheat in drought (59%) was down a point. The last time “hay in drought” was less than 60% was July 3, 2012.

- For the 29th consecutive week (July 10, 2012 – January 22, 2013), drought encompassed more than two-thirds of the domestic cattle inventory.

- Weather outlook: Cold weather will persist through week’s end across the Midwest and Northeast, followed by a rapid warming trend. By early next week, a new surge of cold air will arrive across the northern Plains and the West. The eastern one-third of the U.S. will experience some late-week precipitation, with rain expected in the Southeast and mostly snow in the Northeast. Meanwhile in the West, widespread rain and snow showers will precede and accompany the transition to colder weather. During the weekend, some light but much-needed precipitation will develop across the central and southern Plains before moving into the Midwest.

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An accompanying summary is composed by Brad Rippey (or yours truly, if nec’y) and sent out in an email to the USDAM group as well as key USDA staff

The crops/commodity analyzed varies with the time of year, and currently centers on winter wheat and pastures.

United States Winter Wheat Areas Located in Drought

Agricultural Weather Assessments
World Agricultural Outlook Board

USDA

Moderate or more intense drought (D1+)
Severe or more intense drought (D2+)
Extreme or more intense drought (D3+)
Exceptional drought (D4)
There have been many enhancements, products, and data added to the USDM process over the past two years, perhaps none bigger for authors than the single-source station text data for GIS
2011 Wish List

Higher-res CONUS SPI for GIS?

Data date varies by product. Map reflects most current data as of creation date.
We are still waiting on this key piece; a daily or weekly high-resolution SPI for the CONUS in GIS format would be very helpful!!

2013 Wish List

Higher-res CONUS SPI for GIS?
On a side note, February 5th was “National Weatherman’s Day”…

I didn’t know it existed until this year, when I was sent the following summary of our profession…
Meteorology

What my parents think I do.

What kids think I do.

What half of society thinks I do.

What I want to do.

What my friends think I do.

What I actually do.
Meteorology

What my parents think I do.

What kids think I do.

Questions?

What I want to do.

What my friends think I do.

What I actually do.