

NORTH AMERICAN DROUGHT MONITOR (NADM) WORKSHOP OCTOBER 18-19, 2006, MEXICO CITY, MEXICO

RECOMMENDATIONS AND ACTION ITEMS

Several near-term (1-year) and mid-term (2-4 year) recommendations were identified during the NADM technical discussions. These and their associated action items are included below.

RECOMMENDATIONS

Near-Term

- I. Better monitoring of potential Mexican data problems is needed to ensure past errors in NADM drought depictions in Mexico are not repeated. This can be addressed in two ways:
 - A. Development of additional national drought indicators for Mexico (Action Items 1, 5, 6, 12)
 - B. SMN drought collaboration with other partners in Mexico for analysis of drought conditions on a monthly basis - to be initiated during early 2007 drought workshop in Mexico (Action Item 17)
- II. NADM partners should work with the USGS to explore the possibility of expanding USGS satellite-based products (number of days with precipitation, consecutive number of dry days) from U.S. coverage to U.S. and Mexico coverage. (Action Item 4)
- III. To assist NADM counterparts from Mexico in their desire to take on a greater role in preparing the monthly drought depictions, conduct ArcGIS training with one or more US representatives at the SMN in Mexico City. (Action Item 10)
- IV. As in other parts of North America, there is a strong connection between drought and wildfires. The decision was made not to include an analysis of conditions contributing to fire risk on the NADM map (F indicator) based on prior experiences with the USDM. However, links to web pages that depict real-time hot spots and forest fire risk should be included. (Action Item 16)
- V. Mexico's SMN should include NADM authors such as Ted O'Brien (Canada), Mark Svoboda (NDMC), and Richard Heim (NOAA) in the early 2007 drought meeting in Mexico. They will be able to share their experiences with the NADM, with coordinating drought monitoring in their countries, and with connecting climate and drought information to decision makers and the public. A presentation about the NADM and USDM would be beneficial to those in Mexico who have no experience with how the monitor maps are developed. (Action Item 17)

- VI. Analysis using in situ stations in Mexico continues to be limited by a relatively small number of stations (132) with both good historical records and near real-time data availability. Continue to work toward establishing an operational process for the transmission/availability of precipitation data from stations in Art Douglas' GHCN network of stations for Mexico. (Action Item 7)
- VII. Changes to the NADM map should be made to help clarify that the map is developed from a variety of indicators and to clarify confidence in the Canadian depiction. Links to the NADM website should be added to provide additional sources of information for USDA North America crop information. (Action Items 8, 9, 11)
- VIII. The need to transition from a monthly to a weekly NADM product is resource constrained, in terms of personnel and funding. This transition cannot be attempted without support from a level much higher than the NADM working group level. This issue should continue to be worked through the Earth Observation Partnership for the Americas and should also be raised to the ministerial level as part of a recommendation for a Drought Information System for the Americas at the Earth Observation Summit in 2007. (Action Item 18)

Mid-Term

- IX. The Decision Support System developed by the National Drought Mitigation Center for the U.S. should be expanded to include Mexico and Canada. This could serve as a start to a continent-scale drought portal. The system could support working groups and regional climate assessments in Mexico as well as help raise literacy in the region about drought and climate change. (Action Item 19)
- X. Compile drought impacts information within all three countries (as exemplified by the NDMC Drought Impacts Reporter). This will help each of the three individual governments in monitoring, mitigation, and response activities. The capacity to do this in Mexico can begin to be addressed during the early 2007 workshop. (Action Items 17, 20)
- XI. As part of efforts in Canada (Xuebin Zhang, Bob Morris) to develop new gridding algorithms along with similar work by Art Douglas and others in Mexico, establish a mid-term goal of transitioning from station data to a continental gridded data base for the NADM drought indicator products. (Action Item 21)

ACTION ITEMS

1. Add to the NADM drought indicators page several continental scale indicators which are already being operationally produced, including
 - a. the NESDIS VHI (Vegetative Health Index)
 - b. the CPC Leaky Model Soil Moisture and Precipitation anomalies
 - c. the NWS merged radar/in situ precipitation product
 - d. the Palmer Drought Index (PHDI, PMDI, Z Index)
2. Presently the NADM indicator products plot Canadian data only as point values due to the sparse network density in many areas. Expanding the U.S.-MX contoured maps to include contouring in southern Canada and the Canadian agricultural belt is desired.
 - a. Ted O'Brien (Canada) and Richard Heim (NOAA) will evaluate stations and methodologies as a feasibility assessment.
 - b. Richard Heim will check with Jesse Enloe at NCDC to assess computer programming issues.
3. The Palmer Drought Index can be made available outside the NADM team members if the NCDC-produced Palmer Index data is combined with the Canadian cold climate Palmer Index data to create a more accurate continental Palmer Drought Index indicator map product. Richard Heim (NOAA) and Trevor Hadwen (Canada) will examine issues related to combining the two.
4. NADM partners will work with Jim Verdin at the USGS to explore the possibility of expanding USGS satellite-based products (number of days with precipitation, consecutive number of dry days) from U.S. coverage to U.S. and Mexico coverage.
5. Jay Lawrimore, Xuebin Zhang, and Richard Heim to determine which North America Climate Extremes Monitoring (NACEM) products can be added to the NADM continental drought indicators web page to assist authors with drought analyses.
6. Compute NADM indicators based on both station data and climate division data to produce two sets of maps, one based on only station data and (for at least the U.S./MX) the other based on only divisional data.
 - a. Richard Heim will proceed with NCDC production of the station-only products.
 - b. Art Douglas will work with his Mexican counterparts to develop the climate division methodology and daily data base for Mexico.
7. Incorporate GHCN (CLICOM) precipitation data for the Mexican stations. Use GASIR data for near-real time updates, and use the GHCN (CLICOM) data which will replace the corresponding GASIR data in a delayed update mode. Art Douglas expects to have the data ready in a year (possibly by the end of summer 2007).

8. Place additional text/caveats on the NADM map, to include the following (as agreed to or modified by the NADM collaborators):
 - a. “This product is based on several different drought indices.”
 - b. “This product is based on collaboration between many specialists in the United States, Canada, and Mexico. For additional information, contact: US1, CN1, or MX1.” Where US1, CN1, and MX1 are the contact info for each country.
9. Modify the “experimental” label on the NADM map to read, “There is less confidence in the northern Canada depiction.”
10. Brad Rippey will request approval from USDA to send Harlan Shannon to Mexico to provide one week of NADM ArcGIS training for the Mexican NADM SMN participants.
11. Add to the NADM web site additional links/urls:
 - a. USDA crop profile and Weekly Weather and Crop Bulletin web pages.
 - b. A link to the SMN web site for an announcement of the early 2007 Mexican drought workshop (the information will include a contact email address and phone number) (Richard Heim and Drs. Miguel Cortez and Michel Rosengaus will coordinate the url).
12. Include on the NADM indicators web page maps showing short-term and long-term drought conditions. Richard Heim will develop NADM equivalents to the USDM short-term and long-term objective blend maps using the Indicator data available from each of the three countries.
13. Include on the NADM Indicators web page a map showing the location of the stations for which continental drought indicator data are available.
14. Jay Lawrimore will send an email to all workshop participants containing the urls for the NADM shapefiles and continental indicator data files.
15. Mark Svoboda (NDMC) will set up a listserver for the NADM participants.
16. Jesse Enloe/Richard Heim to add links to NADM website containing access to depict real-time hot spots and forest fire risk, particularly for Mexico.
17. Miguel Cortez to coordinate with NADM authors as needed in preparing for and conducting early 2007 drought meeting in Mexico.
18. Jay Lawrimore to continue working with NCDC’s lead for EOPA and NCDC will continue to push for discussion of a Drought Information System for the Americas at the 2007 Earth Observation Summit.

19. Mark Svoboda to consider potential expansion of US Decision Support System to Mexico. Points of consideration include:
 - a. The corresponding shapefiles and desired geospatial layers from Mexico would be needed.
 - b. Coordination with the new Canadian Decision Support System is required.
 - c. The system would need to be consistent and has potential to be a portal, not just simple web page architecture.

20. Ted O'Brien and his Canadian counterparts have access to impacts information but will need to consider how the availability of this information can be widened and distributed externally.

21. Xuebin Zhang and Art Douglas to provide update on progress toward development of new gridding techniques in 6 to 9 months. Determination on how to incorporate into the NADM process to be made at that time.