

**SOCIO-ECONOMIC BENEFITS OF
METEOROLOGICAL AND HYDROLOGICAL SERVICES**

INVENTORY OF DECISION SUPPORT TOOLS

| ITEM | DESCRIPTION |
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| Sector | Agriculture and Natural Resources |
| Sub-sector | Drought |
| Tool Name | United States Drought Monitor (USDM) |
| Tool Description | The primary goal of the Drought Monitor is to identify and map drought intensity areas for the United States and provide information on the major impact types. |
| Weather, Climate or Water inputs | Various hydrological inputs needed |
| Specific weather, climate, water data required | Precipitation, temperatures, soil moisture, streamflow, snowpack, snow water equivalency Groundwater, reservoir levels |
| Spatial resolution | Multiple-county |
| Temporal resolution | Weekly |
| Delivery methodology | Weekly |
| Frequency of data requirement | Daily/weekly |
| Other??? | United States extent |
| Detailed Tool Description | <p>The Drought Monitor is the result of a cooperative arrangement between the National Drought Mitigation Center (NDMC), United States Department of Agriculture's (USDA) Chief Meteorologist's Office and the National Oceanic and Atmospheric Administration's (NOAA) Climate Prediction Center (CPC) and National Climatic Data Center (NCDC).</p> <p>It was designed to heighten awareness of drought through a single product by labelling drought by intensity from D1-D4 with D1 being the least intense and D4 being the most intense. An Abnormally Dry (D0) category is used to show drought watch areas that may be drying out and potentially heading into drought as well as for those areas recovering and coming out of drought. The map also breaks out and defines areas of longer-term hydrological (H) and shorter-term agricultural (A) impacts. Drought intensity categories are based on 5-7 key indicators and numerous supplemental indicators based on regional and seasonal effects. A ranking percentile methodology is applied in order to break down the intensity categories historically with D0=30, D1=20, D2=10, D3=5, and D4=2 percentile classes respectively.</p> <p>The various indicators, data/products, and impact information for the Drought Monitor comes from a variety of on-line sources. Unique and invaluable to the process are the contributions of data and impacts from nearly 250 "local" experts around the country who provide information/data (ground truth) and iterative</p> |

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| | input throughout the making of the weekly product. These experts are made up of climatologists, meteorologists, hydrologists, soil scientists, natural resource managers and many more from a variety of levels from watershed-, state-, and national-based entities. |
| Spatial resolution | Multiple County-level (climate divisions too) |
| Temporal resolution | Weekly |
| Delivery methodology | Web-based with Arc IMS GIS architecture |
| Frequency of provision | Provide weekly map via the Internet along with GIS shape files made available to those who request |
| Other | Archive and % area statistics tables are generated each week |
| Benefits of tool application | <p>In cooperation with our partners, the National Drought Mitigation Center developed the Drought Monitor in response to the need for a national drought monitoring product for the United States. Defining drought and its impacts are inherently hard to quantify, therefore there had not been a comprehensive and integrated methodology for quantifying drought in the United States.</p> <p>Improved information on drought early warning, severity and spatial extent has proven to help policy and decision makers identify where drought is occurring and what types of impacts are being reported. Drought monitoring also plays a critical role in drought planning, preparedness and mitigation efforts at the local, watershed, state/provincial and national levels. The tool has been used frequently over recent years for triggering USDA drought programs.</p> |
| Possible future advances | <p>The NDMC is working to develop and incorporate more user friendly features to the existing Drought Monitor including the launch in the fall 2006 of a drill down/zoom in capability to the regional and state levels. The NDMC has received funding through USDA's Risk Management Agency to implement a second phase in the development of the tool, which is now in the planning stages. This second phase will improve the GIS robustness and map delivery options down to the sub-state or basin level.</p> <p>The NDMC will also be placing a significant effort on outreach of the tool over the next several years. The Drought Monitor should become the cornerstone monitoring product within the newly created National Integrated Drought Information System (NIDIS) portal currently being developed. NOAA is spearheading this effort.</p> |
| Comments | |
| URL | http://droughtmonitor.unl.edu/ |
| Others | http://drought.unl.edu , http://www.usda.gov/oce/weather/ http://www.cpc.ncep.noaa.gov/ http://www.ncdc.noaa.gov http://www.noaa.gov/index.html |