Developing the Vegetation Drought Response Index (VegDRI):
Monitoring Vegetation Stress from a Local to National Scale

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What is VegDRI?

VegDRI is a new ‘hybrid’ drought index that integrates:

- satellite-based observations of vegetation conditions
- climate-based drought index data
- biophysical characteristics of the environment

to produce 1-km spatial resolution maps that depict ‘drought-related vegetation stress’ and are regularly updated (currently at 2-week interval) during the growing season.
What is VegDRI?

Vegetation Drought Response Index
Complete

Vegetation Condition
- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-Drought
- Near Normal
- Unusually Moist
- Very Moist
- Extremely Moist
- Out of Season
- Water

October 20, 2008
VegDRI vs. U.S. Drought Monitor

**Goal of VegDRI Tool**: National-level monitoring capabilities with local-scale information (i.e., county to sub-county level) regarding the level of drought stress on vegetation.
VegDRI - An Integrated Approach

Remote Sensing Component + Climate Component + Biophysical Component
**Role:** Satellite-based observations provide information on the *spatial distribution and general condition of vegetation.*

(+) Spatially detailed information about vegetation across large geographic areas.

(-) Difficult to discriminate drought impacted areas from locations under other types of environment stress (flooding, fire, hail, & pests) or experiencing land use change.
**Role:** Climate-based drought index maps provide a ‘broad-scale’ measure of dryness that can be used for interpretation of the vegetation stress recorded in the satellite observations.

- Drought areas typified by below average vegetation conditions recorded in the satellite data and drier than normal conditions in the climate data.
VegDRI - An Integrated Approach

**Role:** Different characteristics of the environment are considered that influence climate-vegetation interactions.

- land use/land cover type
- irrigation
- soil available water capacity
- elevation
- ecological setting
VegDRI Expansion Schedule

- Information currently available for Pacific Northwest (ID, OR, & WA):
  - 2007 & 2008 growing seasons

- Production of a 20-year historical record of VegDRI maps.
  (1989 – 2008)

- Year-round production & weekly map updates planned in 2009.

(*) Bi-weekly maps currently available.
VegDRI Website and Products

VegDRI products are available at the VegDRI page within the Monitoring section of the NDMC website.

http://www.drought.unl.edu/vegdri/VegDRI_Main.htm
1. VegDRI Quick-View Maps
   (multiple spatial scales)

Regional-level

State-level

Sub-state level
1. VegDRI Quick-View Maps (cont).
(land cover type)

Complete view

Cropland view

Rangeland view
2. VegDRI Area Statistics (% area)
(currently available at state-level only)

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<th>Date</th>
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<th>Moderate Drought</th>
<th>Pro-Drought</th>
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- Summarize the % area of each VegDRI class for ‘current’ map and all prior dates in the growing season.
- Specific tables available for rangeland and cropland.
- Tables are currently available only at state level.
3. Change Maps

3 Types:

1) Prior period
   ex. - Sep 4, 2007 vs. Sep 10, 2007

2) Same period from the prior year or a specific year in past
   (* currently not available)
   ex. – Sep 24, 2007 vs. Sep 24, 2006

3) Historical average (* currently not available)
   ex. – Sep 24, 2007 vs. average for Sep 24 (1989 through 2006)
6. Dynamic Map Viewer (in development)

- Zoom in & pan across VegDRI maps
- Overlay multiple layers of other information
  - county boundaries, rivers, roads, and other boundaries (resource districts, section lines)
  - historical climate maps
  - land cover maps
  - U.S. Drought Monitor maps
The user customizes the view of the map for their specific needs and interests.
6. Dynamic Map Viewer (in development)

Capability to visualize information at the local level for a county or multiple counties.
For more information about VegDRI, please contact:

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