An overview of WA06-02B: Drought monitoring

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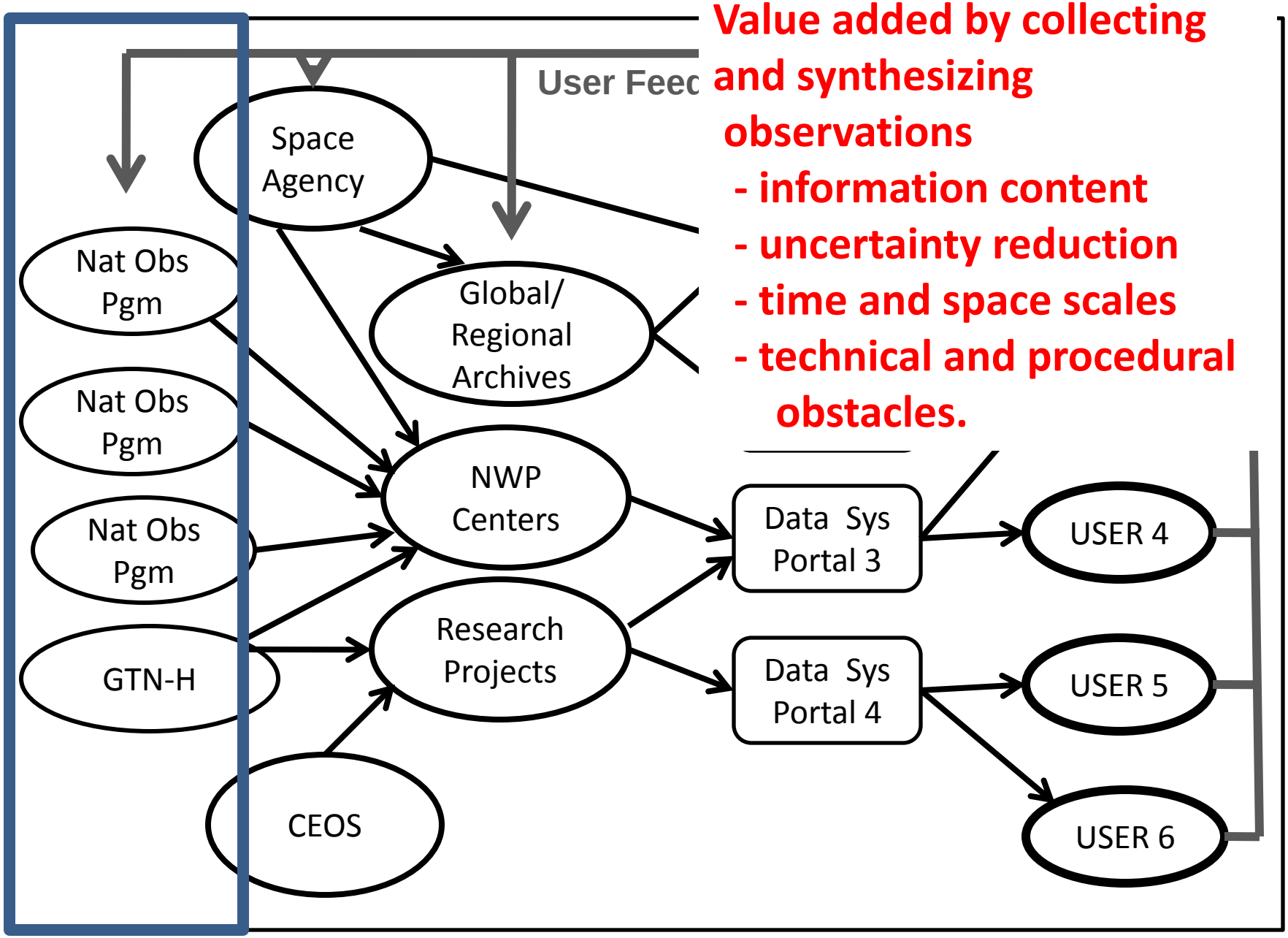
DRI and GEO: TASK WA-06B

b) Impacts from Drought
This sub-task is led by Canada, USA and WCRP

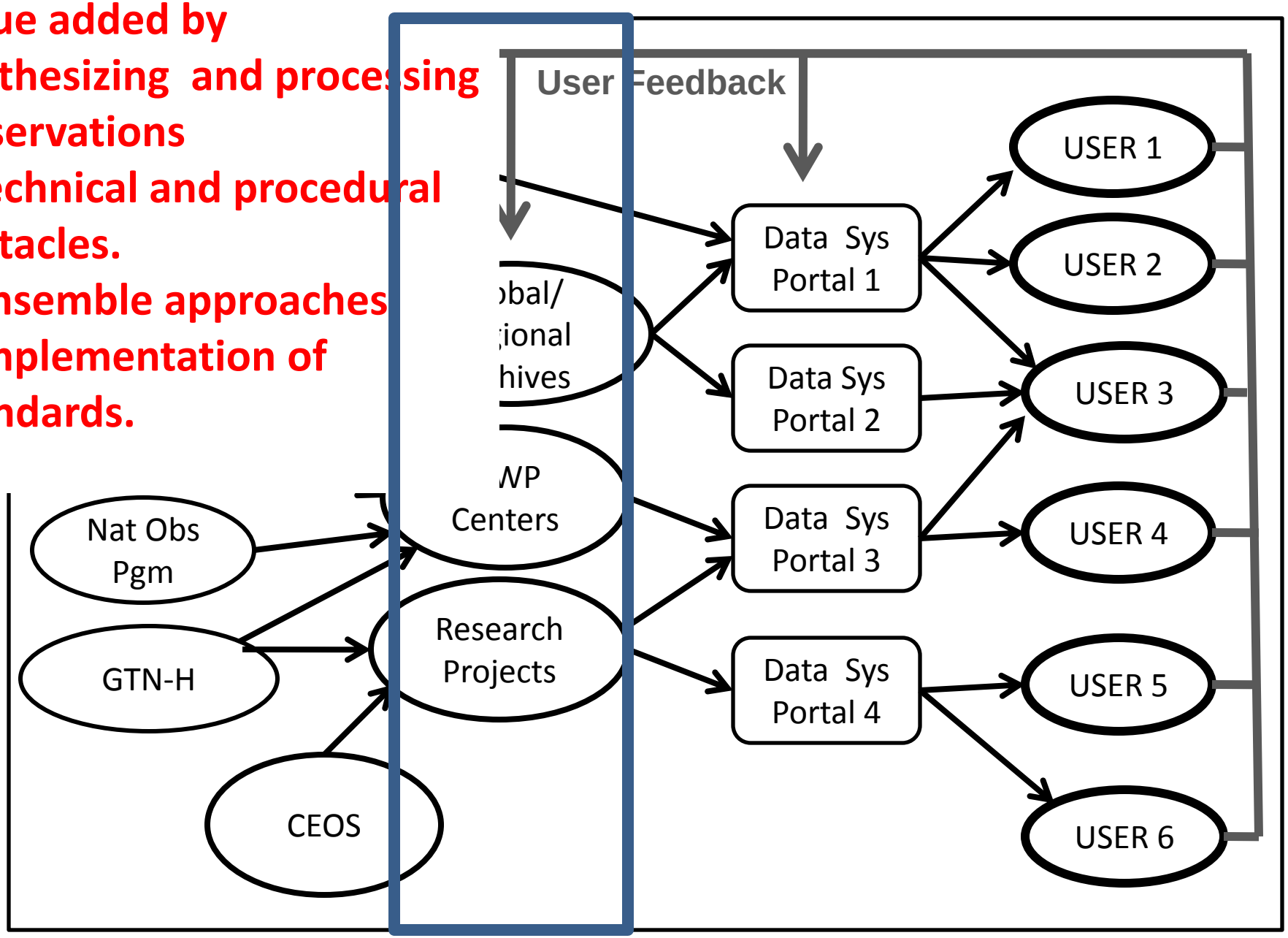
Tracking and analyzing impacts from drought (including feedbacks such as soil drying) will provide a tangible and practical demonstration of the value of integrated water cycle observations by developing a full and operational data cycle of environmental information from “producer-to-consumer” / “source to sink,” and exploring the application of data products in the Water and Agriculture societal benefit areas.



Scope of the Integrated Global Data and Information System

Value added by Synthesizing and processing Observations

- technical and procedural obstacles.
- ensemble approaches
- implementation of Standards.



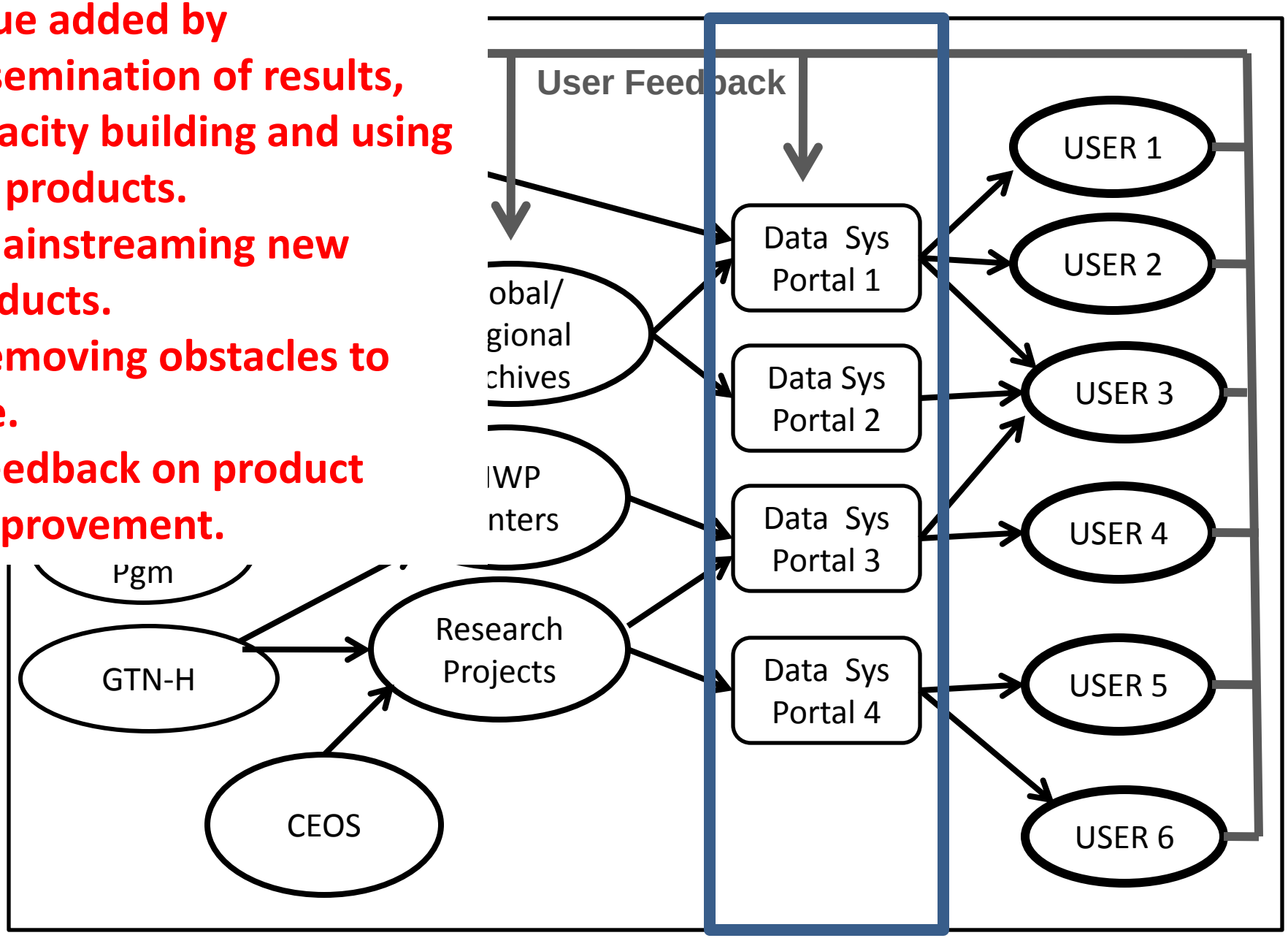
Scope of the Integrated Global Data and Information System

Value added by dissemination of results, capacity building and using the products.

- mainstreaming new products.

- removing obstacles to use.

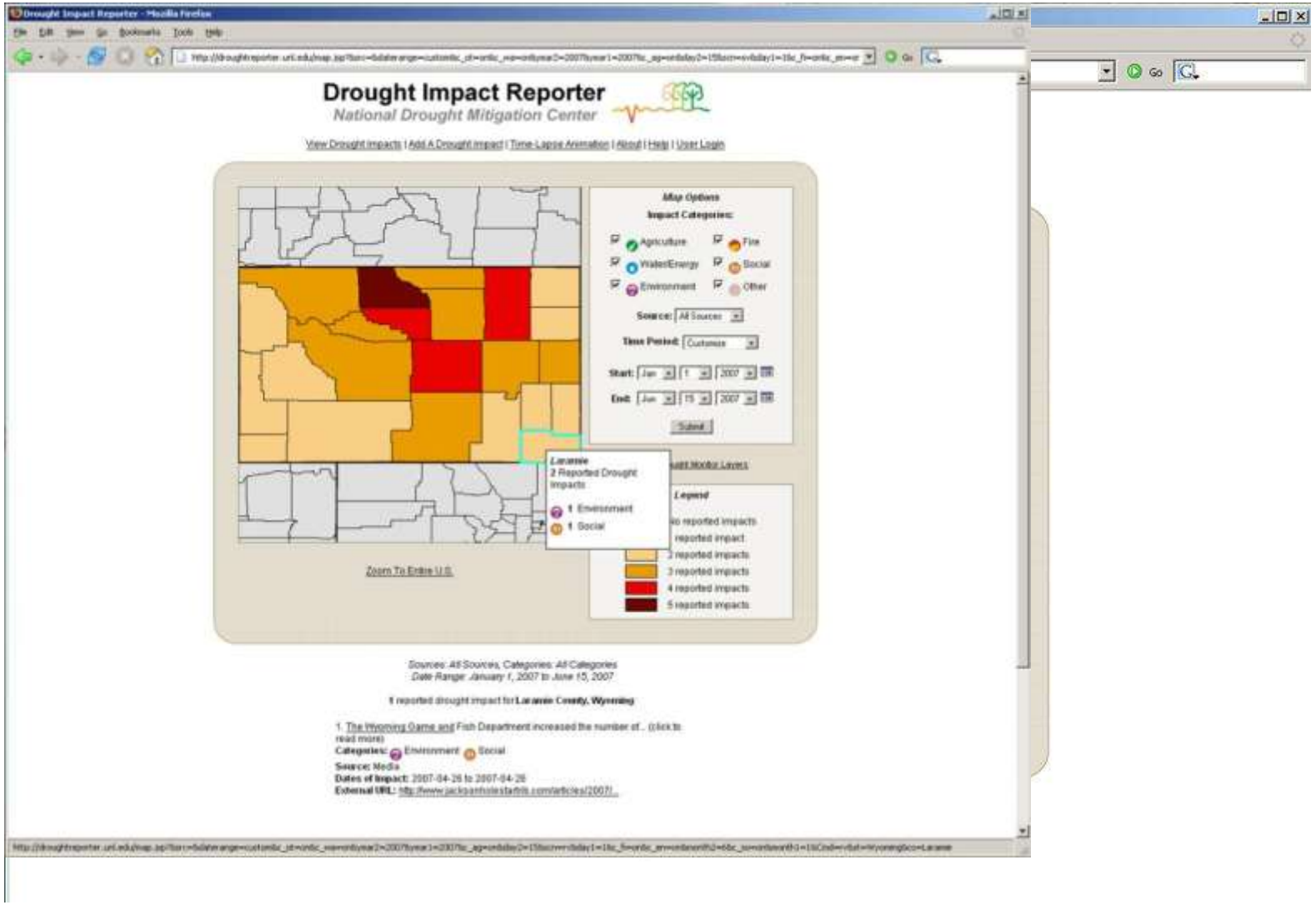
- feedback on product improvement.



Scope of the Integrated Global Data and Information System

Potential Elements:

1) Tracking drought impacts based on media reports. (USA)



Drought Impact Reporter

About the Drought Impact Reporter | **Impacts** | Media Reports | Condition Reports | Make a Report | Search the Database | Submit Feedback

First 10 of 32 Next 10 >>

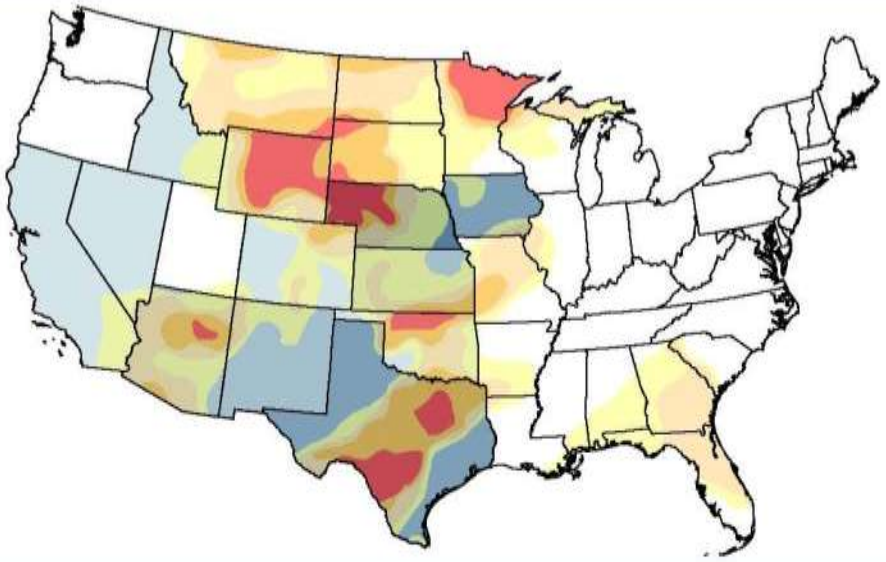
Continental US Impacts
11-21-06 – 11-21-06

- 2 Society & Public Health
- 5 Agriculture $
- 5 Disaster Declarations & Aid $
- 3 Energy
- 8 Water Supply & Quality
- 2 Wildfire
- 1 Plants & Wildlife
- 4 Other Business & Industry $
- 2 Tourism & Recreation

USDA extends emergency grazing on CRP acres in 30 states

Disaster Decalarations & Aid

Agriculture Secretary Mike Johanns has lengthened the time allowed for emergency livestock grazing on land in the Conservation Reserve Program (CRP) in 30 states for farmers and livestock owners who were affected by drought. The deadline is usually September 30... *more*



Continental United States | Alaska | Hawaii

Date starting on Nov 21 2006

ending on Nov 21 2006

Search

Zoom to the full extent of the selected geographical area
Zoom out
Zoom in
Pan
Display summary impact or report information
Refresh the map
Print map

Legend

Visible

[-] Number of Categories
- 0 Categories
- 1 Categories
- 2 Categories
- 3 Categories
- 4 Categories
- 5+ Categories

[+] Categories

[+] Media Reports

[+] Condition Reports

[-] Drought Monitor
- D0
- D1
- D2
- D3
- D4

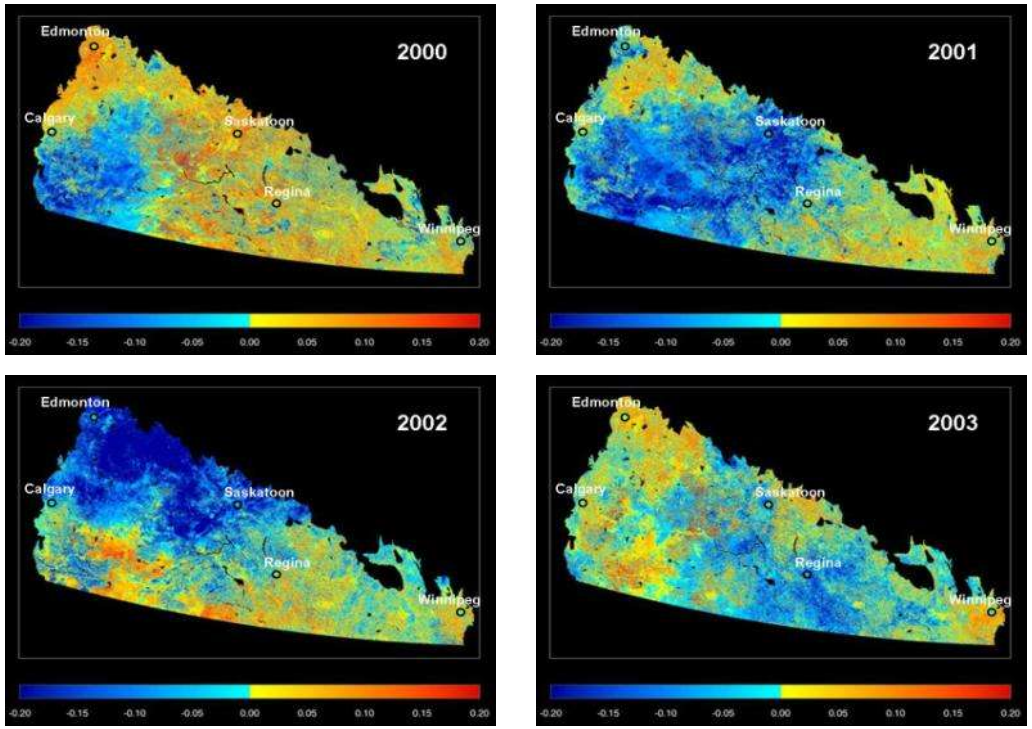
Date Nov 21 2006

Select

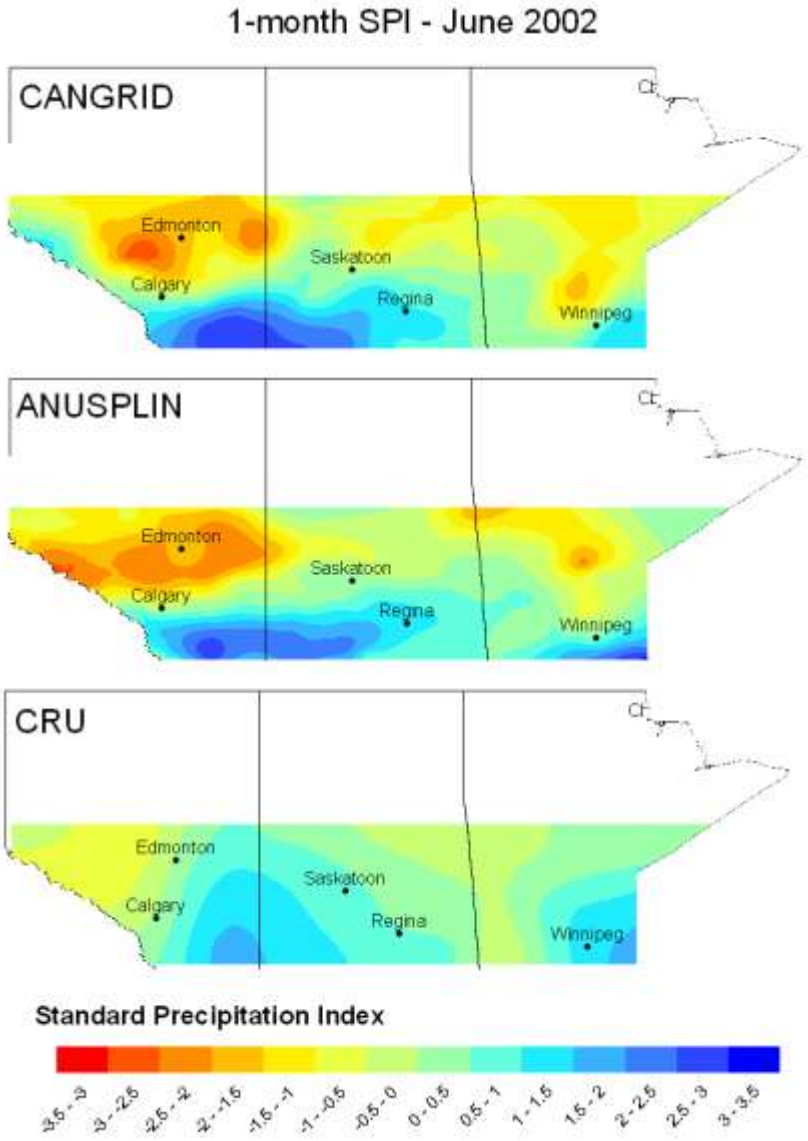
[-] Boundaries
- Hydrologic Units (HUCs)
- Counties
- Congressional Districts
- States

Theme 1:

Quantify the physical features, and to characterize the time evolution of the flows of water and energy into and out of the region, and storage and redistribution within the region



NDVI anomalies (based on 2000-08 mean) for 2000-2003
250m spatial resolution for 10-day period of July 11-20
(Yang, Wang, Trishchenko)



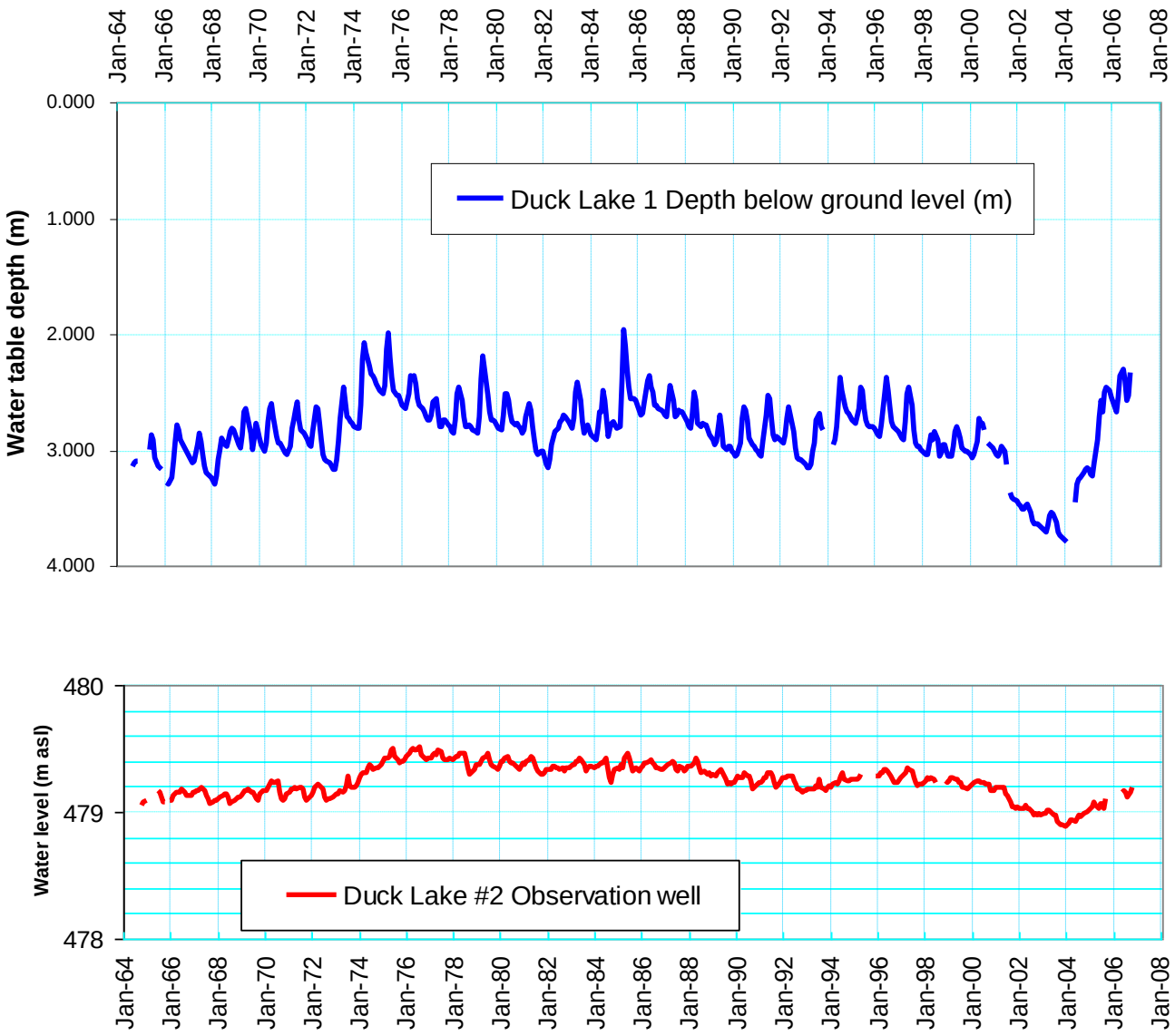
The return period for a drought at a particular location is dependent on the data source used.
(1: ~1:100y, 2: ~1:50y, 3: ~1:33y, …. 39: 1:2.5y)

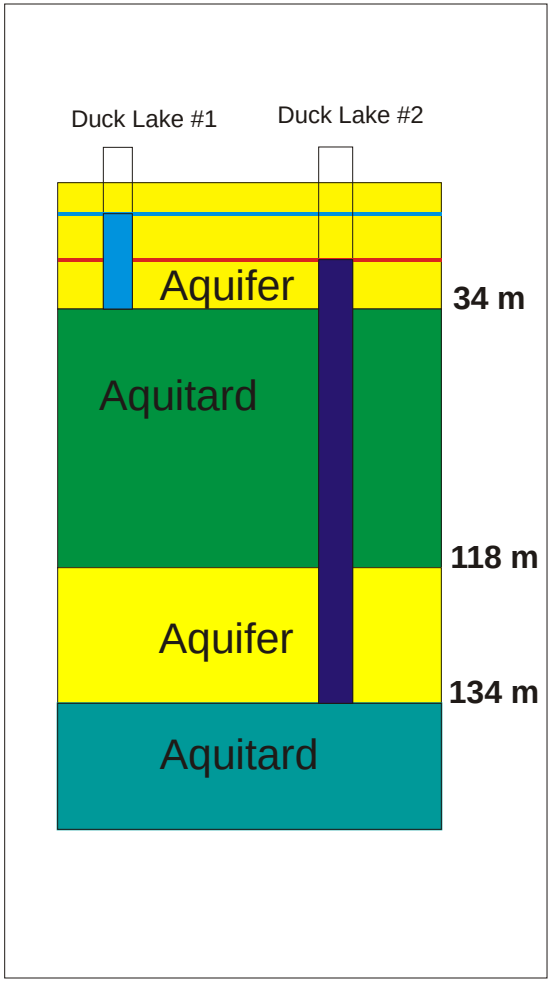
	STATION	CRU	CANGRID	ANUSPLIN
2001	1	39	2	1
1919	2	3	5	4
1924	3	4	3	3
1933	4	10	6	12
1929	5	2	1	5
2002	6	14	29	8
1998	7	8	25	18
1930	8	24	8	19
1952	9	11	19	17
1984	10	38	32	16

- 12-month SPI based on 2001 Agricultural year (September 2000- August 2001)

Duck Lake SK Observation wells: water levels, 1964-2006

[Source: SK Watershed Authority, www.swa.ca]





DRI ASSESSMENTS OF DROUGHT INDICES

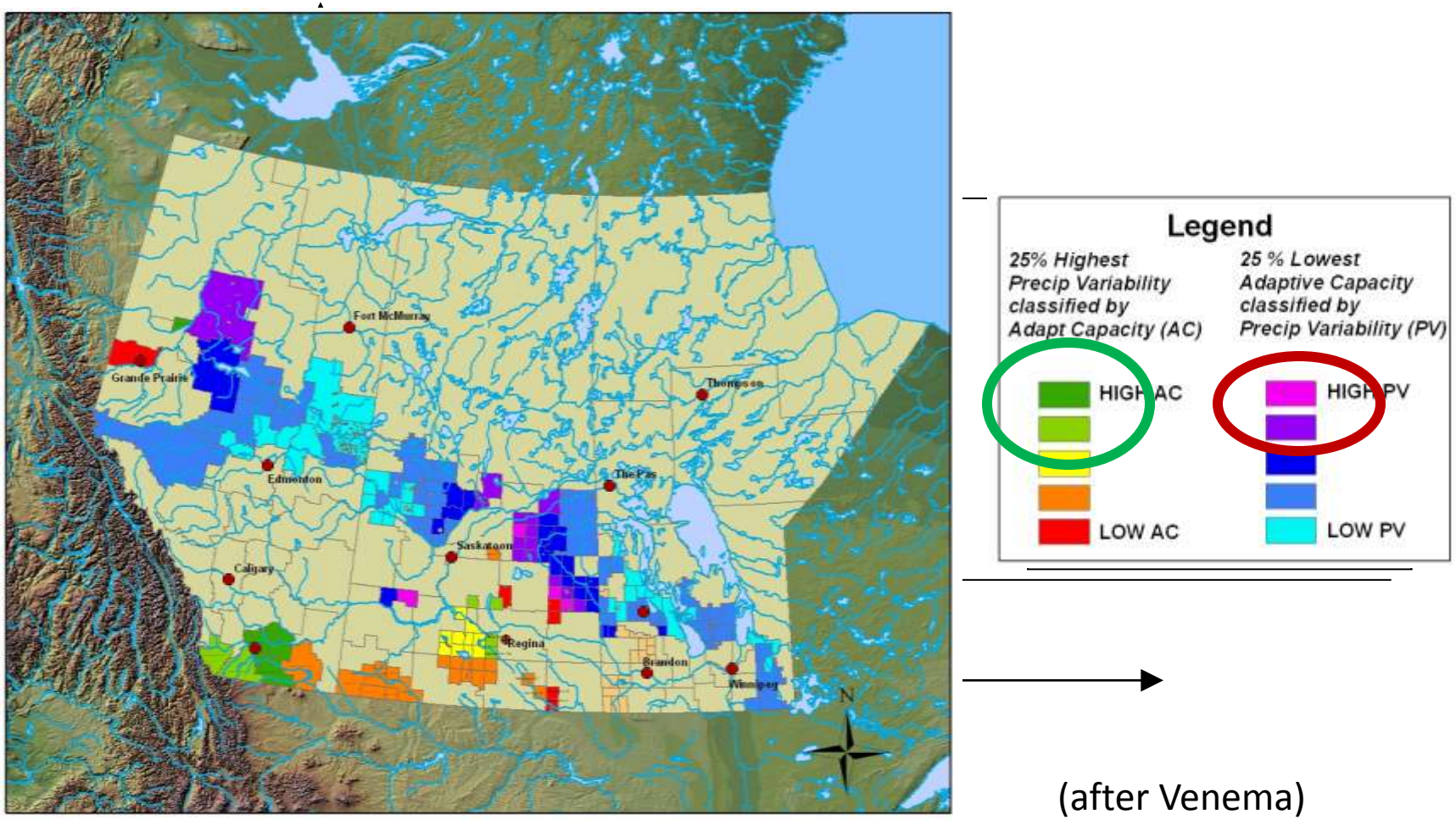
DRI WORK ON THE CHARACTERIZATION OF DROUGHTS ADDRESSES:

- ATMOSPHERIC VARIABLES
- SURFACE HYDROLOGY
- GROUNDWATER.

ISSUES BEING ADDRESSED:

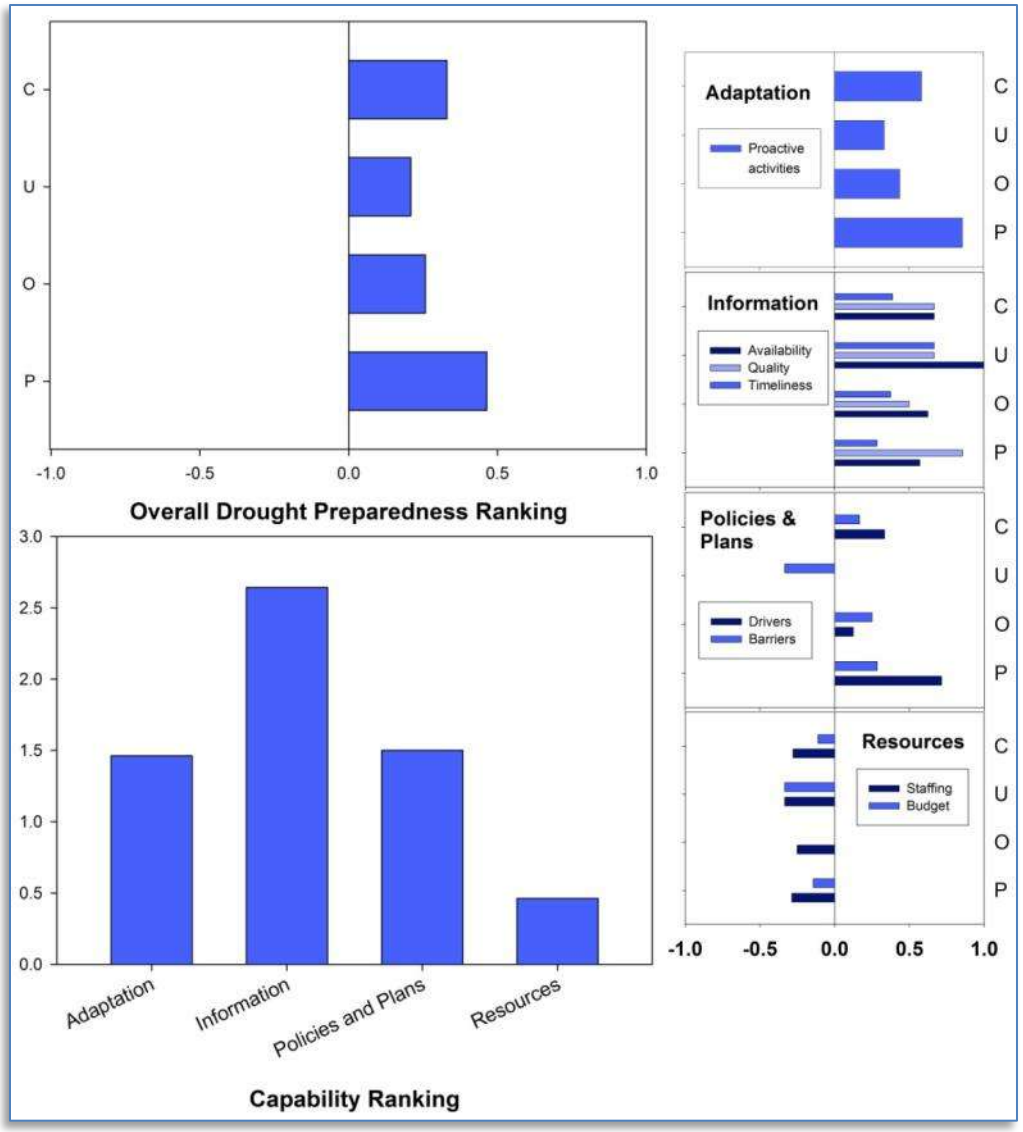
- THE VALUE AND USE OF GRIDDED VARIABLES VERSUS POINT VALUES.
- THE VALUE OF REANALYSIS PRODUCTS.
- THE UTILITY OF REMOTE SENSING DATA.
- THE ADEQUACY OF VARIOUS INDICES USED TO MONITOR DROUGHT.
- THE RELATIONSHIP OF INDICES TO IMPACTS.

Assessing Adaptive Capacity for dealing with Precipitation Variability



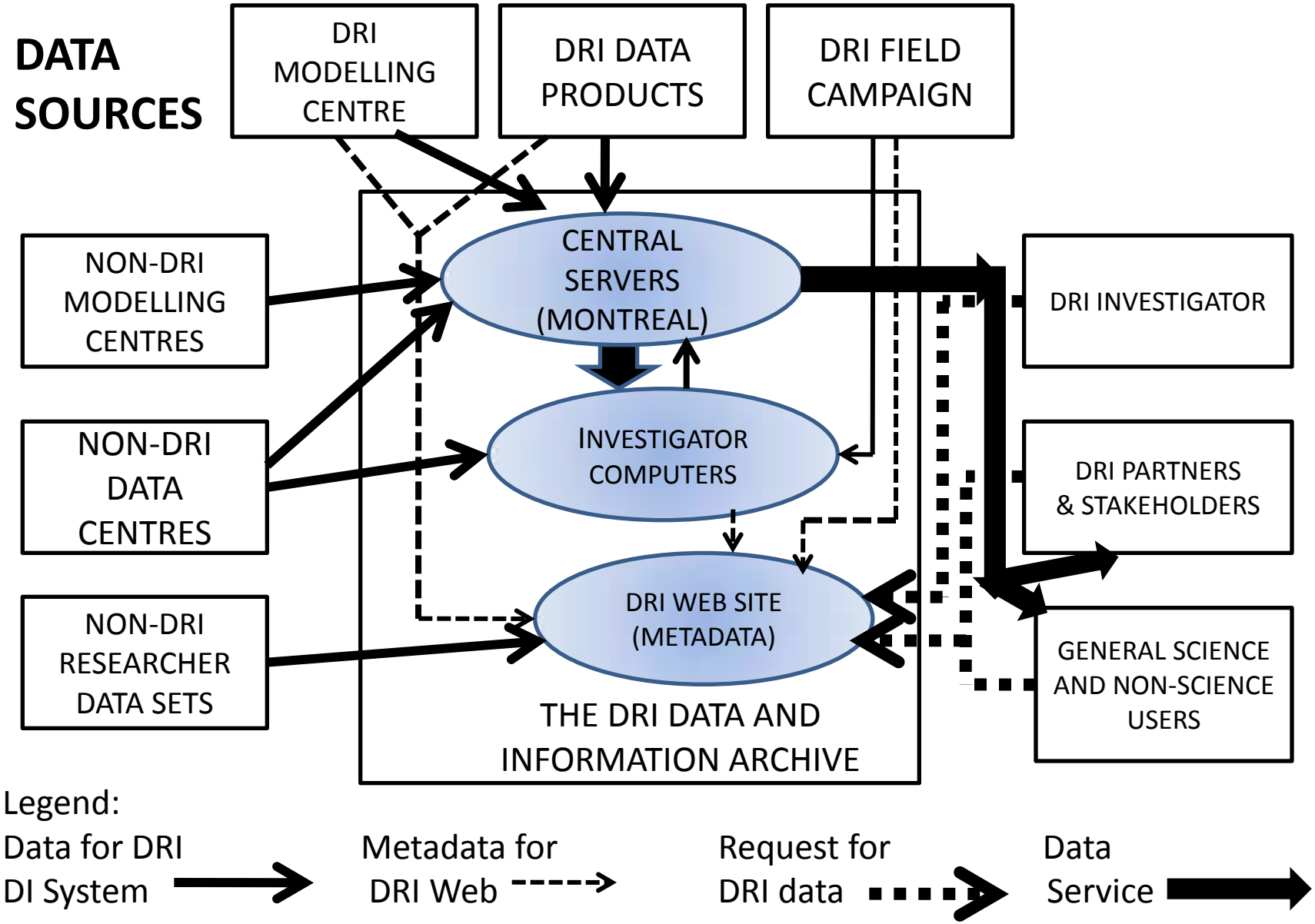
(after Venema)

Saskatchewan DPP



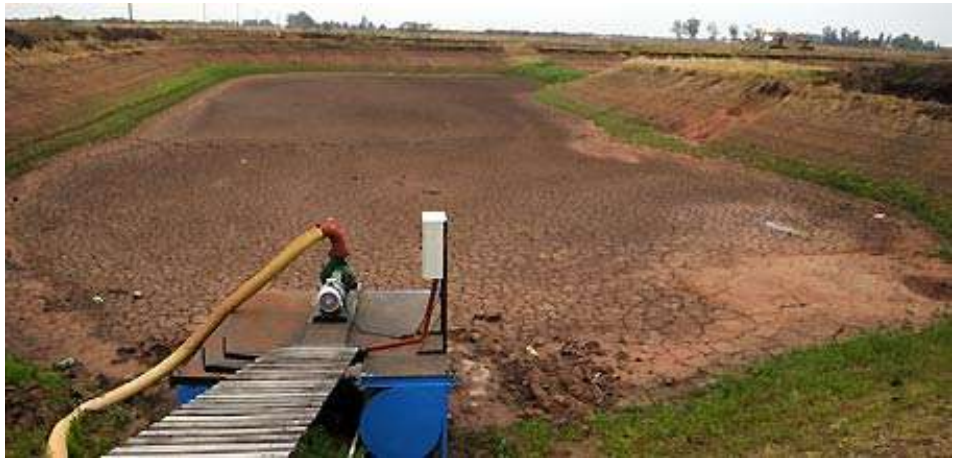
On the Canadian prairies, information is not the limiting factor in dealing with drought.

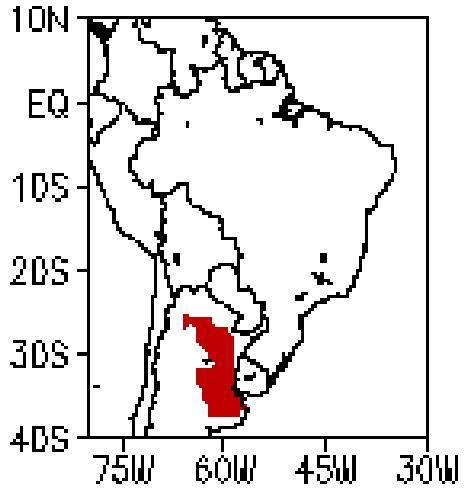
2) DRI data legacy data system plans to bring data sets together to produce an analysis systems that would allow users to identify the characteristics of the drought over the region during the 1999-2005 time period.



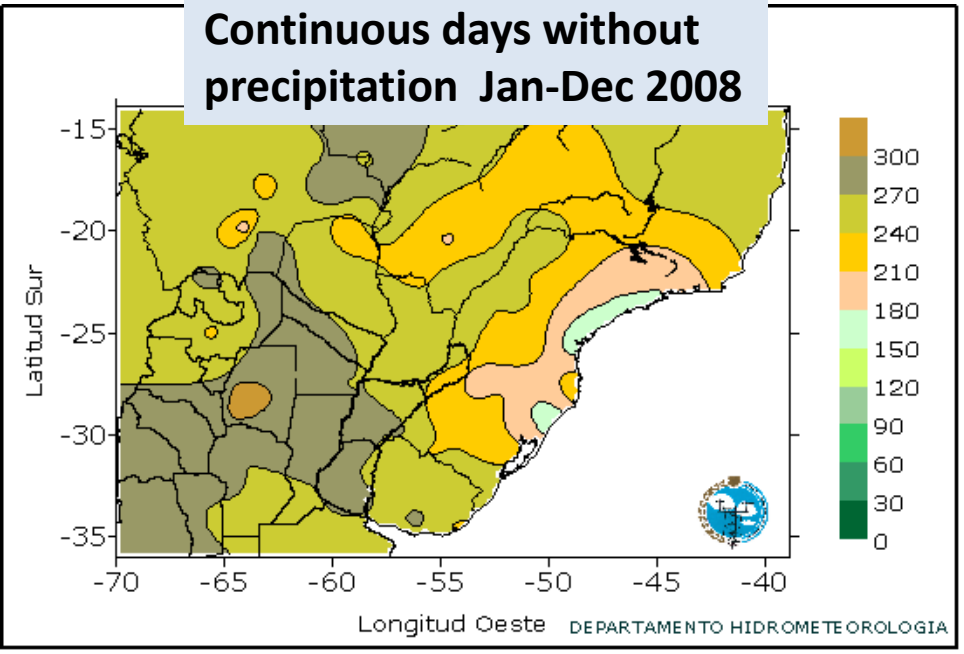
Droughts occur around the world.
Can we establish a monitoring system
Of their impacts?

2008 in the La Plata Basin

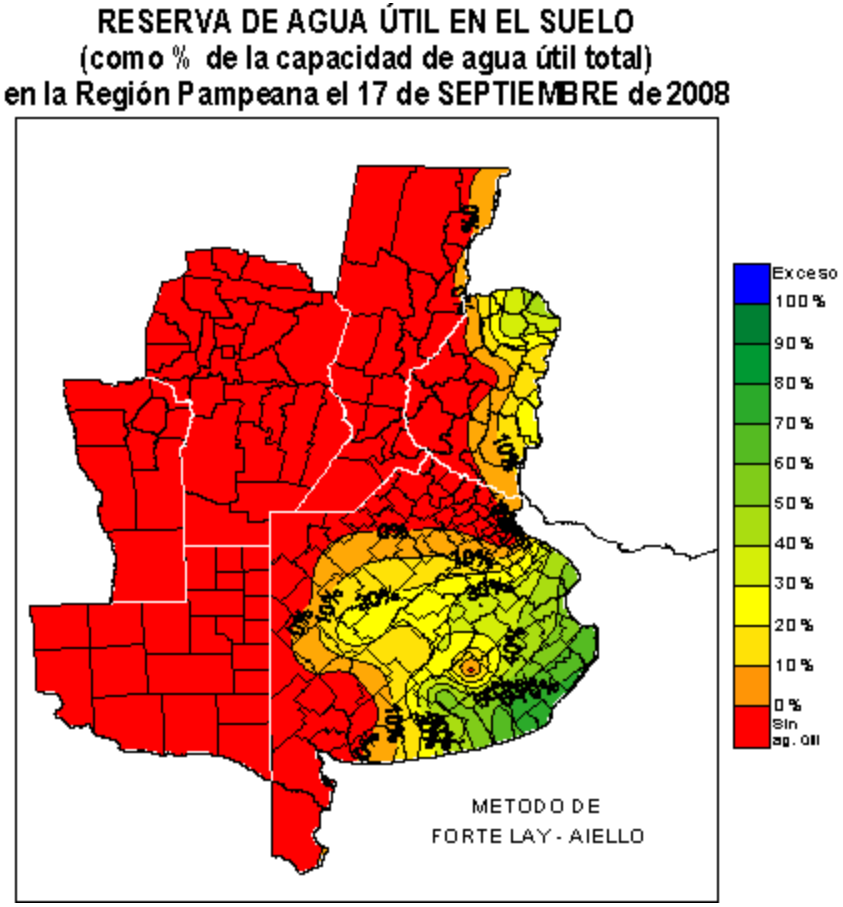




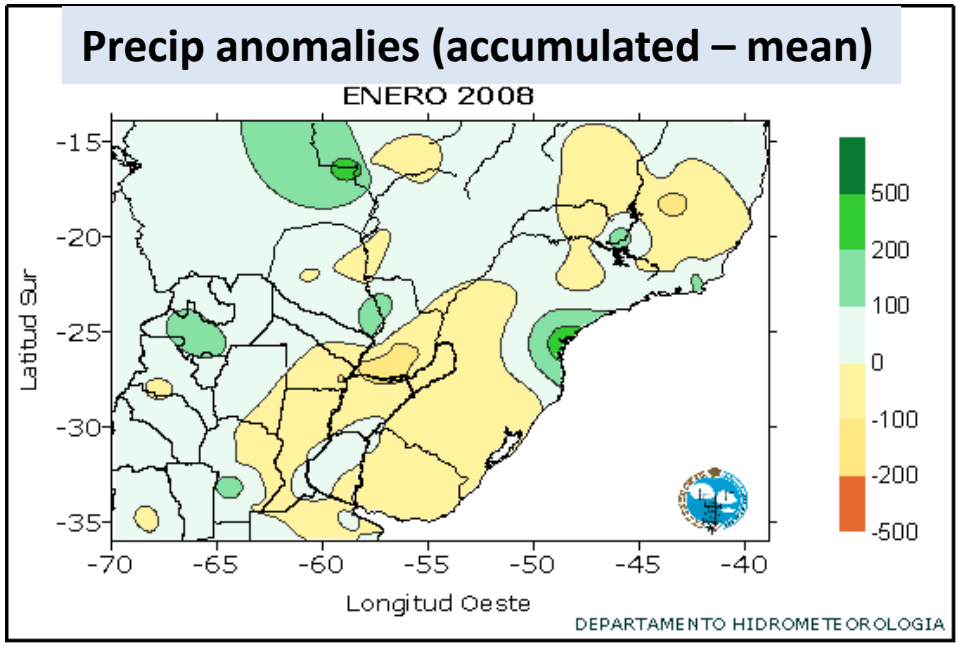
Continuous days without precipitation Jan-Dec 2008



Water availability during austral spring (9/17/08)

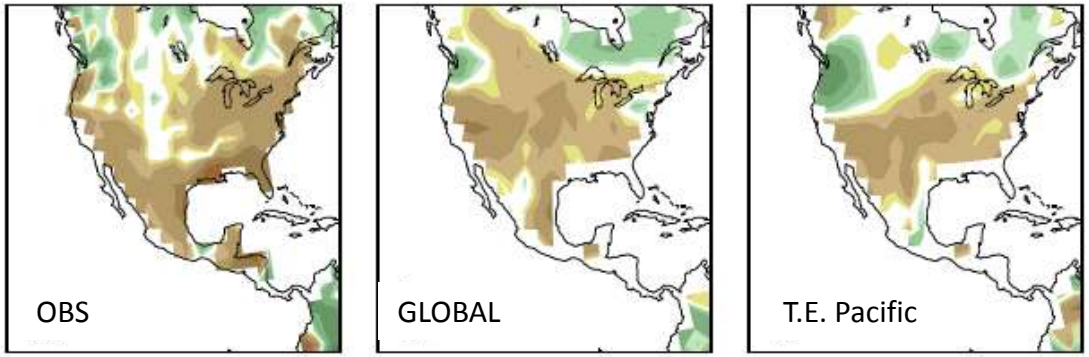


Precip anomalies (accumulated – mean)



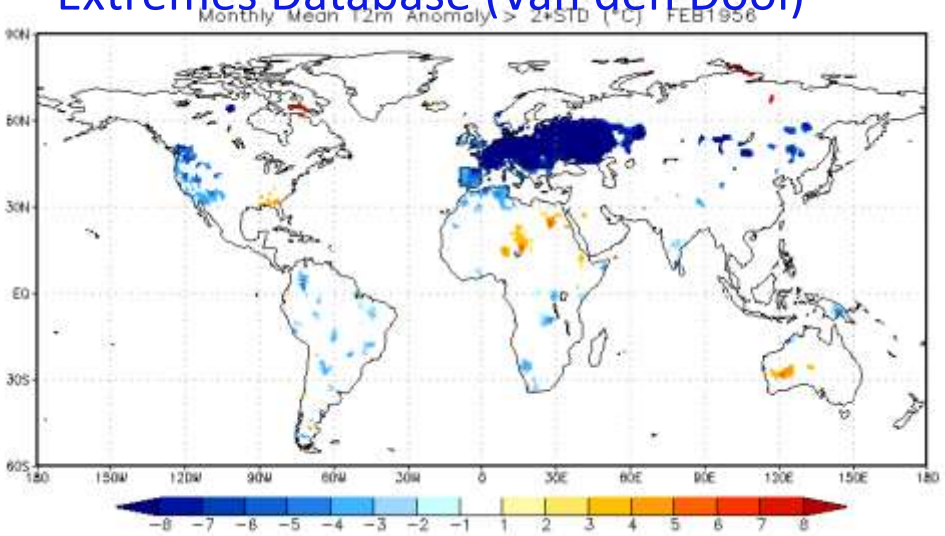
CPPA Drought and Extremes Studies

Tropical influences on drought North America



January-May precipitation anomalies over the U. S. for 1998-2002 (**Huang and Seager)**

Extremes Database (Van den Dool)



New FY08 Projects

- **Roles of SST modes**
- Role of **remote convection**
- Influences of **multi-ocean basins**
- Roles of **vegetation and sub-surface water** and drought impact on phenology;
- Diagnosis of **water budget and moisture sources** during drought
- H**ydrological predictability in the West** under drought conditions

Summary:

Large drought impacts exist in many parts of the world. Monitoring these Impacts is done well in some countries but not so well in others. A lot of work remains to be done to integrate them into an overall plan and programme. This will be done by interaction with various national, regional and global programmes and activities to see how they can contribute to this overall task.