



Agriculture and  
Agri-Food Canada

Agriculture et  
Agroalimentaire Canada

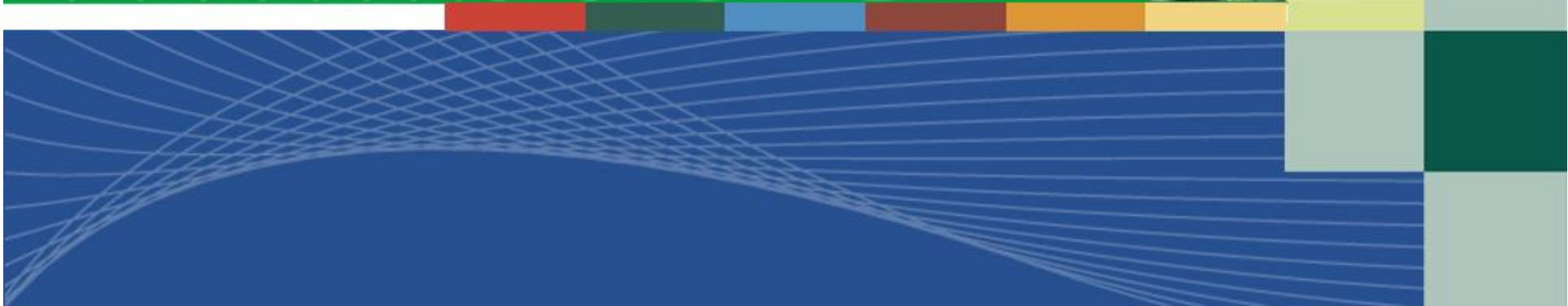
Canada

The National Land and Water Information Service

# Climate Data and Drought Research

Can NLWIS Help the Drought Research Initiative?

A. Howard: Agriculture and Agri-Food Canada





# What is the National Land and Water Information Service?

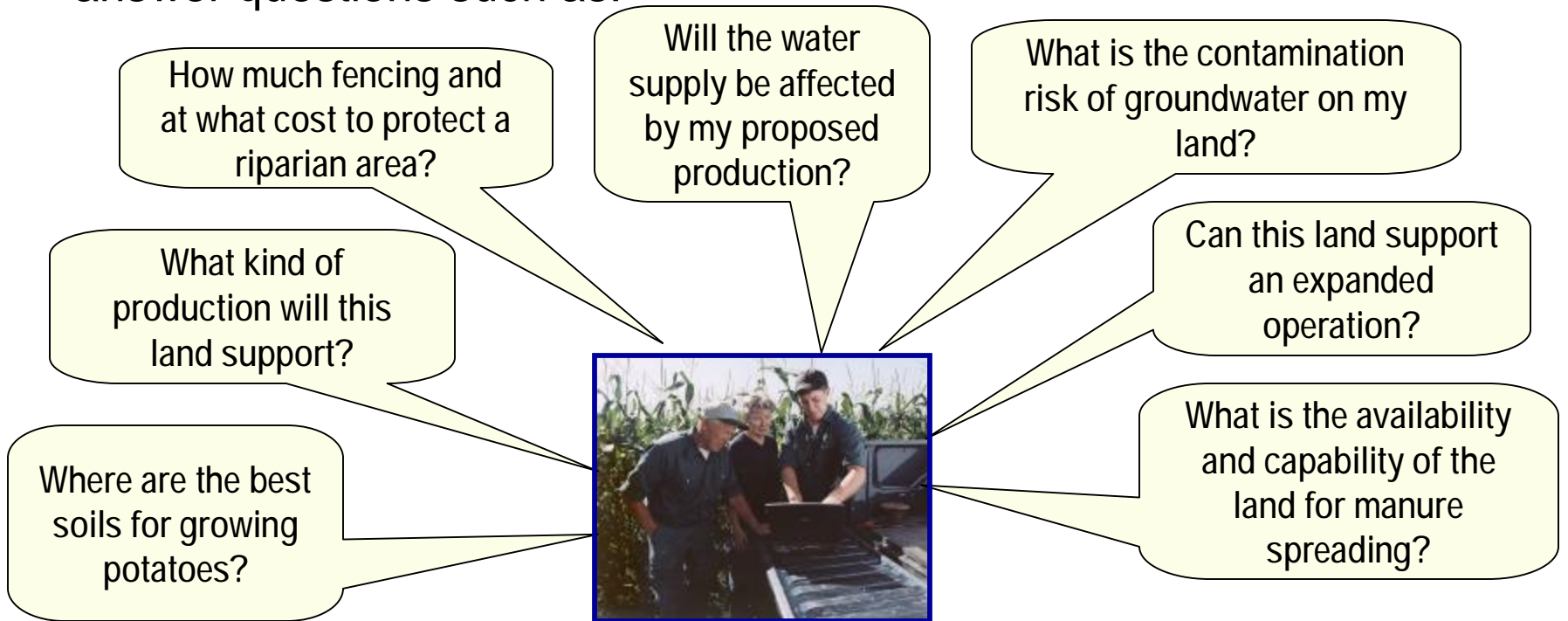
An across-Canada, environmentally friendly, on-line, agricultural Service to

- support sustainable land use management,
- ensure the quality of and access to agri-environmental geographic data on a national basis,
- develop digital land, soil, water, climate and bio-diversity data,
- facilitate and accelerate environmental decisions,
- develop agricultural management tools,
- provide access through a public Internet portal, and
- make available quality land and water expertise services.



# Who will benefit?

- § Improved access to information will:
  - help balance economic development and environmental sustainability
  - contribute to regional and rural economic development
  
- § National Land & Water Information Service will enable producers to answer questions such as:





# Phase 1 – Single Window

Front Page of  
NLWIS Web site

[www.agr.gc.ca/nlwis](http://www.agr.gc.ca/nlwis)

 Agriculture and Agri-Food Canada / Agriculture et Agroalimentaire Canada

Canada 

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AAFC Online	Links	Newsroom	What's New	Site Index

The National Land and Water Information Service

**On-line agri-environmental data, information, tools and expertise to support land-use decision making**

West Souris   
Launch in a new window

- Maps
- Data
- Tools
- Expertise
- NLWIS - CanSIS
- About Us
- A-Z Index
- Latest News
- Publications
- Quick Links
- Glossary

Wondering where to begin?

[NLWIS Help](#)  
[Feedback](#)

Versions  
[Printer friendly](#)

**Maps**



Access interactive maps to visualize information

**Data**



Find/access geospatial data

**Expertise**



Find Agri-environmental expertise

**Tools**

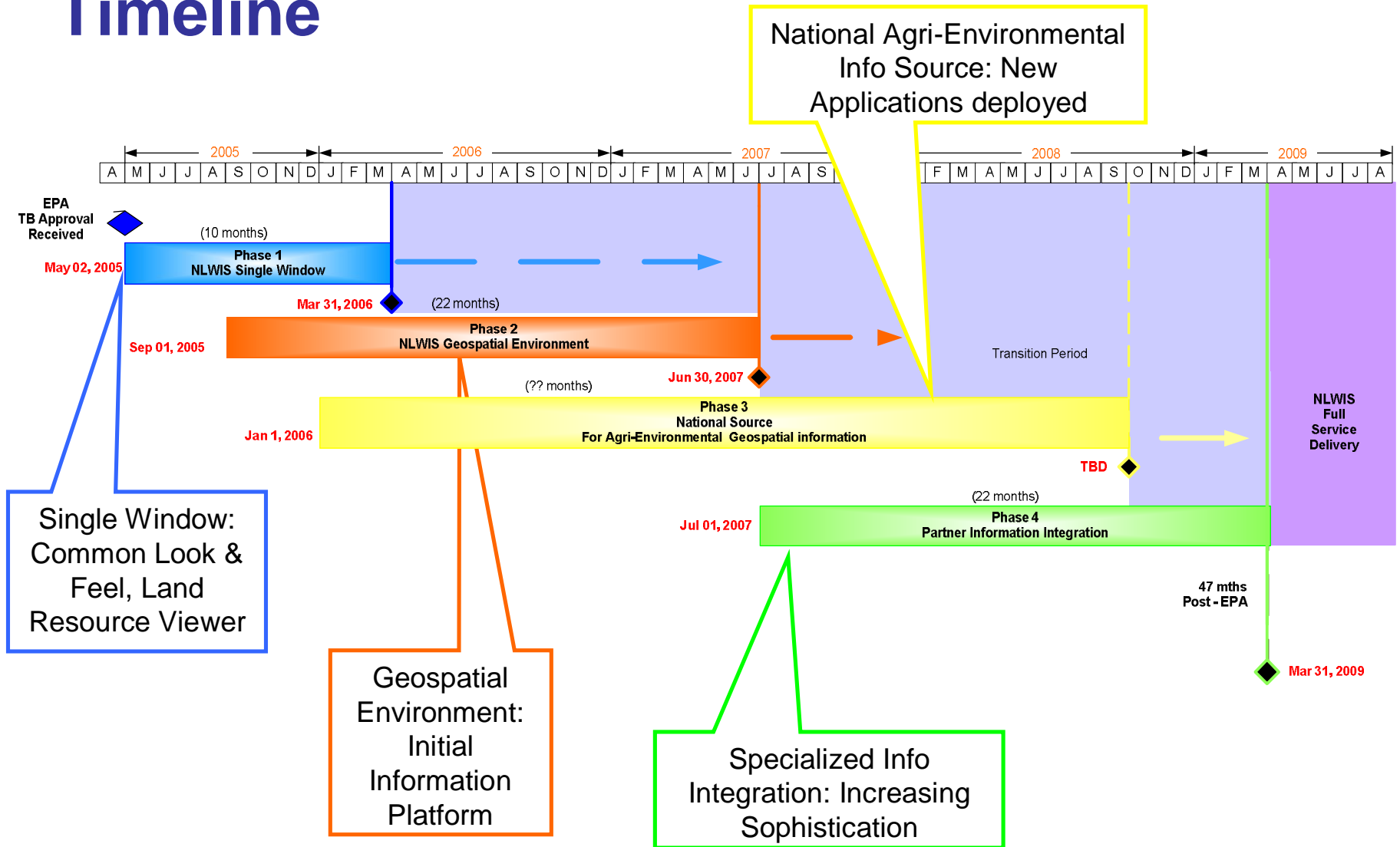


Tools to plan for a sustainable Agri-environment

**Latest News**



# Timeline





# Climate Data

## 1. Data Development

- Migration of existing data to NLWIS
  - AAFC data
  - Connectivity to E.C. data
  - Agreements with provinces/federal agencies
- Development of new data products
  - National daily gridded dataset for climate
  - National Crop Assessment System: MODIS NDVI
  - Soil Moisture Assessment SSMI



## Climate Data (cont'd)

### 2. Application Development

- Existing Systems
  - Drought Watch
- New Products
  - Based on business requirements
  - Drought model, use of SCRIBE,



## Gridded Daily Data

- Goal:
  - To have the best estimate of the historical daily climate record available for each unit of land in the Agriculture Zone of Canada
- Why?
- Assessing historical reference (normals and POR) for NAIS NRT monitoring products,
- Reference tool for soil moisture modeling,
- Climate reference for enhancing the Land Suitability Rating System,
- Data that can be inputted into crop models for regional yield estimation, producer decision support,
- Potentially a role in adaptation to climate change



## Gridded Data

- Key Concepts
  - Scientifically valid
  - Daily
  - Generate data as multiple scales
    - Fine resolution capability (10 km)
  - Ability to update and refine
  - Long POR
  - Error displayed
    - Temporal and spatial

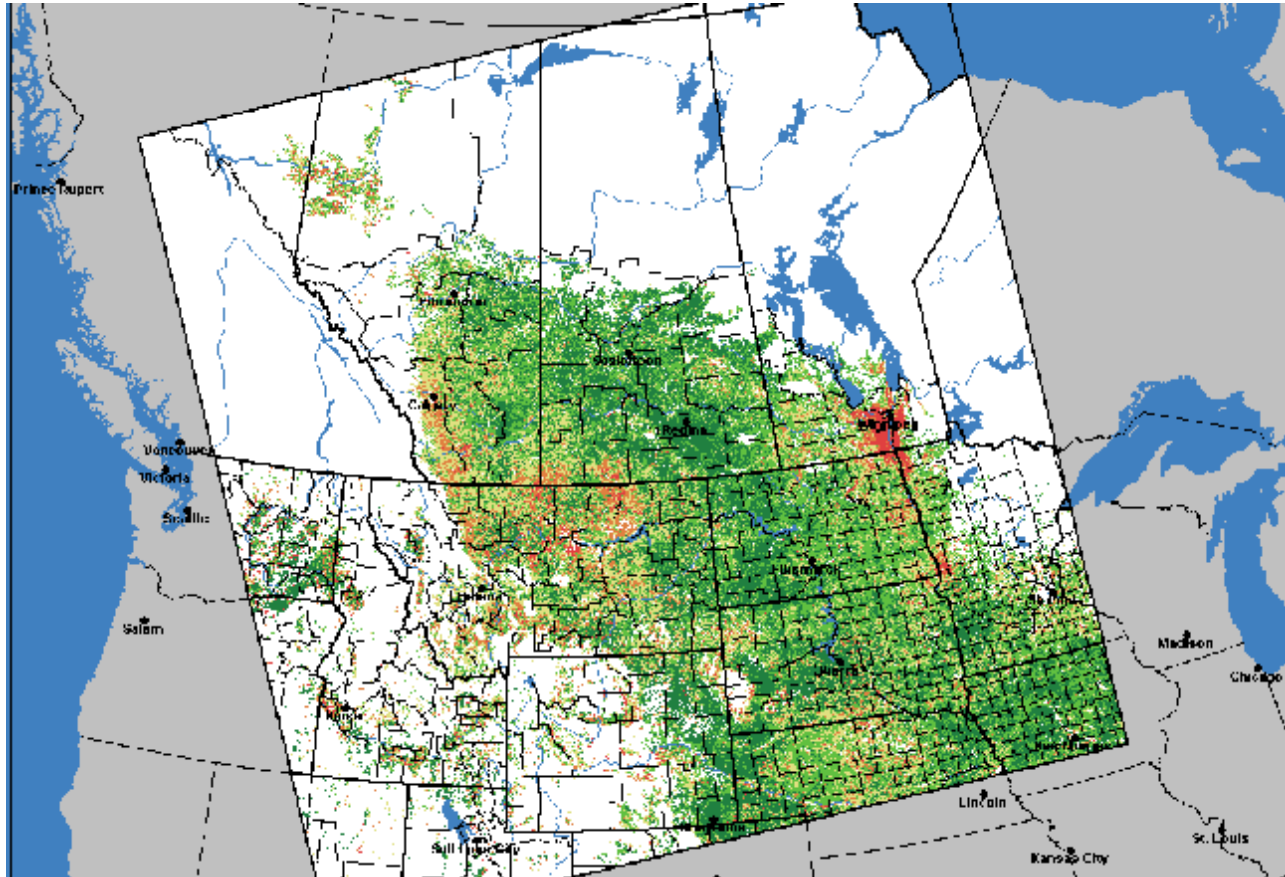


## Data Considerations

- Based on Environment Canada archived daily data, and NCDC archived data
- Parameters:
  - Temperature:  $T_{Max}$   $T_{Min}$  & Precipitation
  - Opportunity to include other parameters later
- Extensive buffer outside the agriculture zone (forested areas & northern US)



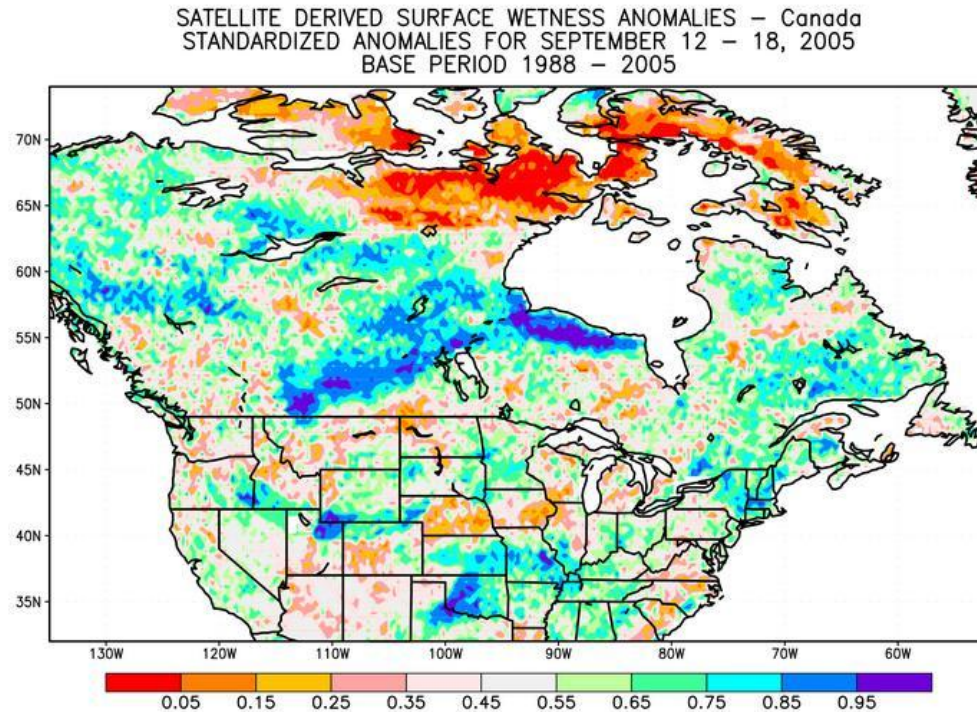
# Application of Remote Sensing Products



**July 10 - 17, 2005**



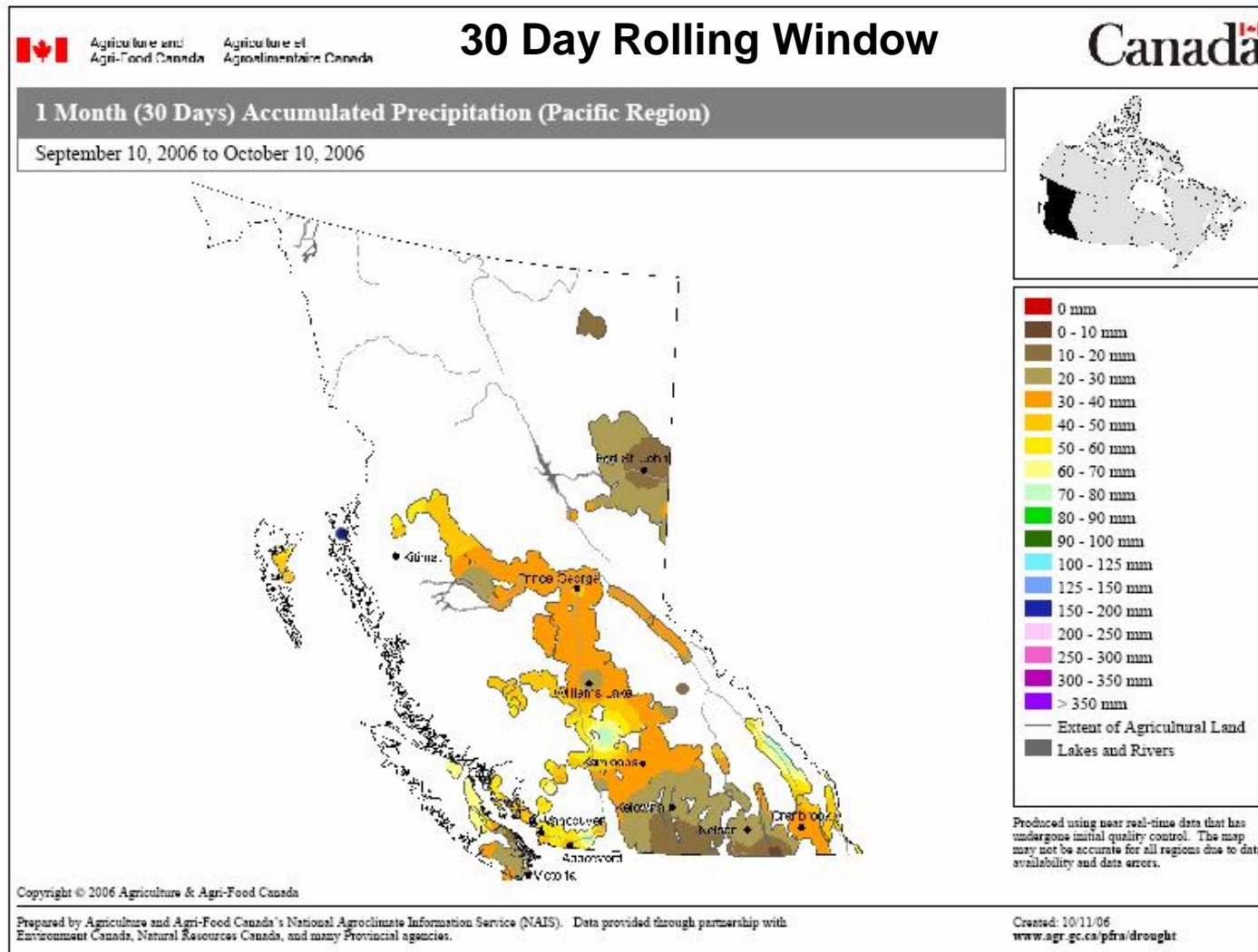
# Application of Remote Sensing Products



Heavy Rain at Harvest



# Near Real Time Monitoring





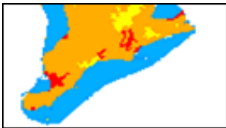
## Summary

- NLWIS will have the capacity to store and large datasets and to integrate natural resource data in a geospatial format
- NLWIS will provide internet based access to data and application based products at a variety of scales
- Climate data and products in NLWIS will help in assessment of drought and other climate extremes
- NLWIS timelines are for full operation by 2009. The period for fastest growth in applications will be 2008-09.

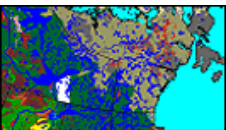
[www.agr.gc.ca/nlwis](http://www.agr.gc.ca/nlwis)



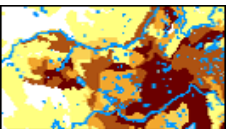
## Phase 1 - Services Available To Date



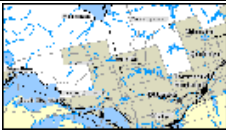
**Agri Environmental Indicators (AEI):** NAHARP assesses and reports on the agriculture sector's environmental performance via a set of AEI. Provides reliable, science-based information on the current state and changes in the conditions of the environment in agriculture at a national or regional scale.



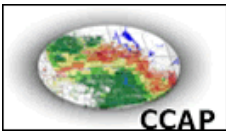
**Soil Landscapes of Canada v2.2:** Describes the major characteristics of soil and land for the whole country. SLCs were compiled at a scale of 1:1 million, and information is organized according to a uniform national set of soil and landscape criteria based on permanent natural attributes.



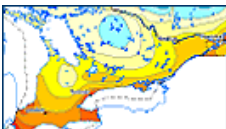
**Soil Landscapes of Canada v3.0:** An update of the Soil Landscapes of Canada, developed by AAFC to provide information about its agricultural soils at the regional and national levels. It provides new soils information at a scale of 1:1 million for the major agricultural regions of Canada.



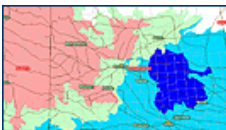
**Canada Land Inventory (CLI):** The CLI is a comprehensive multi-disciplinary land inventory of rural Canada. In the late 1990's, CanSIS converted the original CLI Agriculture datasets to a component-based file structure. Land capability for agriculture, forestry and wildlife recreation were mapped.



**Crop Condition Assessment Program:** CCAP developed and maintained by Statistics Canada in partnership with AAFC Canada, is an interactive application that uses low-resolution, digital satellite data during the growing season to monitor changing vegetation conditions in Western Canada and the US.



**Crop Heat Units:** The Corn Heat Unit system, also known as Crop Heat Units (CHU), was developed in the 1960's and is used to recommend corn hybrids and soybean varieties which are best suited for production in specific CHU zones in eastern Canada.



**Dugout and Pasture Conditions:** An AAFC initiative which allows users to view historical dugout levels and pasture grass growth conditions for the Canadian Prairies. Data can also be viewed as PDF maps, bar graphs or data tables, and are available from May 1, 1998 to November 1, 2005



**Land Resource Viewer (LRV):** Is a generic application meant to provide the basic functionality for viewing and eventually manipulating many forms and sources of geospatial data - all on-line. Many of the NLWIS subsequent tools will be accessed through the LRV.



# Project Overview

The project is being implemented in four phases over four years. Each phase will produce specific deliverables with increasing levels of service and tangible benefits for a range of users.

## **Phase 1 – Single Window**

Pulls together currently dispersed activities within AAFC and provides single window access to AAFC data mapping services

## **Phase 2 – Geospatial Environment (IT Platform)**

Initial information technology platform for the service

## **Phase 3 – National Source for Agri-Environmental Geospatial Information**

Delivers new GIS services on the new platform

## **Phase 4 – Specialized Information Integration**

Enriches access and linkages to collaborators' information and data