

Crop Conditions from Medium-Resolution Imagery

Summary

Canada's Crop Condition Assessment Program (CCAP) is developed and maintained by Statistics Canada and is delivered to the public free of charge through Agriculture and Agri-Food Canada's National Land and Water Information Service (NLWIS) and National Agroclimate Information Service (NAIS), led by Agriculture and Agri-Food Canada (AAFC). NLWIS provides open and free access to data, information and tools over the Internet to support sound land use decision making by Canadians. NLWIS is also generating the next generation of CCAP products to ensure the future delivery of crop condition information. NLWIS will conform to the Canadian Geospatial Data Infrastructure (CGDI) and international (Open Geospatial Consortium, OGC) standards. NLWIS and AAFC's research community are working together in developing the next generation of Earth observation products to meet ongoing and emerging user needs.

Relevance to GEO

The Crop Condition Assessment Program supports many of the user needs documented in the Socio-Economic Benefit Areas (SEBAs) identified by the GEO international community, in particular:

- Understanding, assessing, predicting, mitigating and adapting to climate variability and change;
- Improving the management and protection of terrestrial, coastal and marine ecosystems;
- Supporting sustainable agriculture and combating desertification;

Description

Canadian crop conditions are required regularly in near real time for crop condition assessment purposes. AAFC currently uses Advanced Very High Resolution Radiometer (AVHRR from NOAA)-derived 1km-resolution Normalized Difference Vegetation Index (NDVI) data for crop assessment on the prairies (weekly composites) and across the country (10-day composites). Due to field size variability in Canada, AVHRR is too coarse for some applications, and there are concerns about the continuity of these data. As a result, AAFC has developed a system for processing 250m-resolution NDVI data for both weekly composites and multiple time-period composites for all of Canada from Moderate Resolution Imaging Spectroradiometer (MODIS from NASA). NLWIS is developing an operational system that can create weekly NDVI datasets with a three-day lag for posting on the Internet (Figure 1). The system will be operational for the 2008 growing season.



Weekly crop condition imagery (NDVI) from the MODIS satellite sensor

Added Value

Crop condition monitoring contributes to policy outcomes by supporting water resources management, reducing vulnerability to risk, and supporting production risk programs. It is a particularly important contributor to several agri-environmental information and application needs, especially monitoring of drought and other risks to sustainability.

Participants

The MODIS data processing and analysis system for crop condition assessment is led by AAFC working in close collaboration with Statistics Canada and the Canada Centre for Remote Sensing of Natural Resources Canada.

Current Status and Next Steps

The system to produce near-real-time NDVI composites is in place. Work is under way to prepare the Web delivery tool and investigate other products that can be developed from MODIS data.