

Drought Research Initiative: Theme 3 Overview (2009)

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DRI Theme 3

- Assess and reduce uncertainties in the prediction of drought and its structure
- Progress in 2009
 - Second Prediction Workshop
 - Progress in projects
 - Proposed prediction synthesis paper

Second DRI Prediction Workshop

- September 28, 2009, McGill University
- Participants
 - Stewart, Henson, Lin, Wen
- Key messages
 - Environment Canada's operational seasonal forecast shows low skill in 2001/02 drought
 - Ongoing diagnosis of forecast
 - Initial draft of prediction paper

Progress in projects

- Hanesiak
 - Ensemble model approach to quantify uncertainty in modeled ET and soil moisture
 - Validated using observations from 3 DroughtNet sites and tower measurements
 - Good simulation of soil moisture and ET between vegetation types and wet/dry years
- Hayashi
 - VSMB: groundwater recharge model, improvements in evaporation and snowmelt
 - Data collected from West Nose Creek watershed are used
- Leighton
 - Comparison of cloud-precipitation relationships from CRCM and observations: annual precipitation, cloud cover, top-of-atmosphere albedo, SPI index
 - CRCM performs well generally with varying degree of success
- Stewart
 - Flow of water through clouds and precipitating systems to surface in drought regions
 - Soundings from Edmonton before and during drought episodes show integrated water vapour amounts can be near normal even during worst parts of drought
- Lin and Wen
 - VIC (stand-alone mode) to reconstruct soil moisture over Prairies (1971-2005)
 - SMAPI (Soil Moisture Anomaly Percentage Index) indicates drought severity
 - Real time drought monitoring and forecast available on web
<http://www.meteo.mcgill.ca/~leiw/vic/prairies>
 - CLASS data sets constructed for projects with Aaron Berg and Al Woodbury

Draft outline of prediction article: All are invited to participate

- Introduction
- Background
- Prediction capability
 - Hindcast of extreme events
 - Forecast
- Key aspects of 1999-2005 drought
 - Prediction
 - Diagnosis of success/failure
- Recommendations
- Conclusions