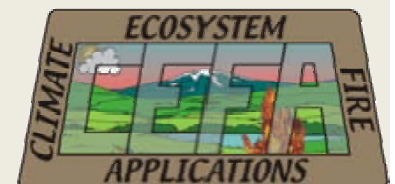


Meteorological Data for Fire Danger Products

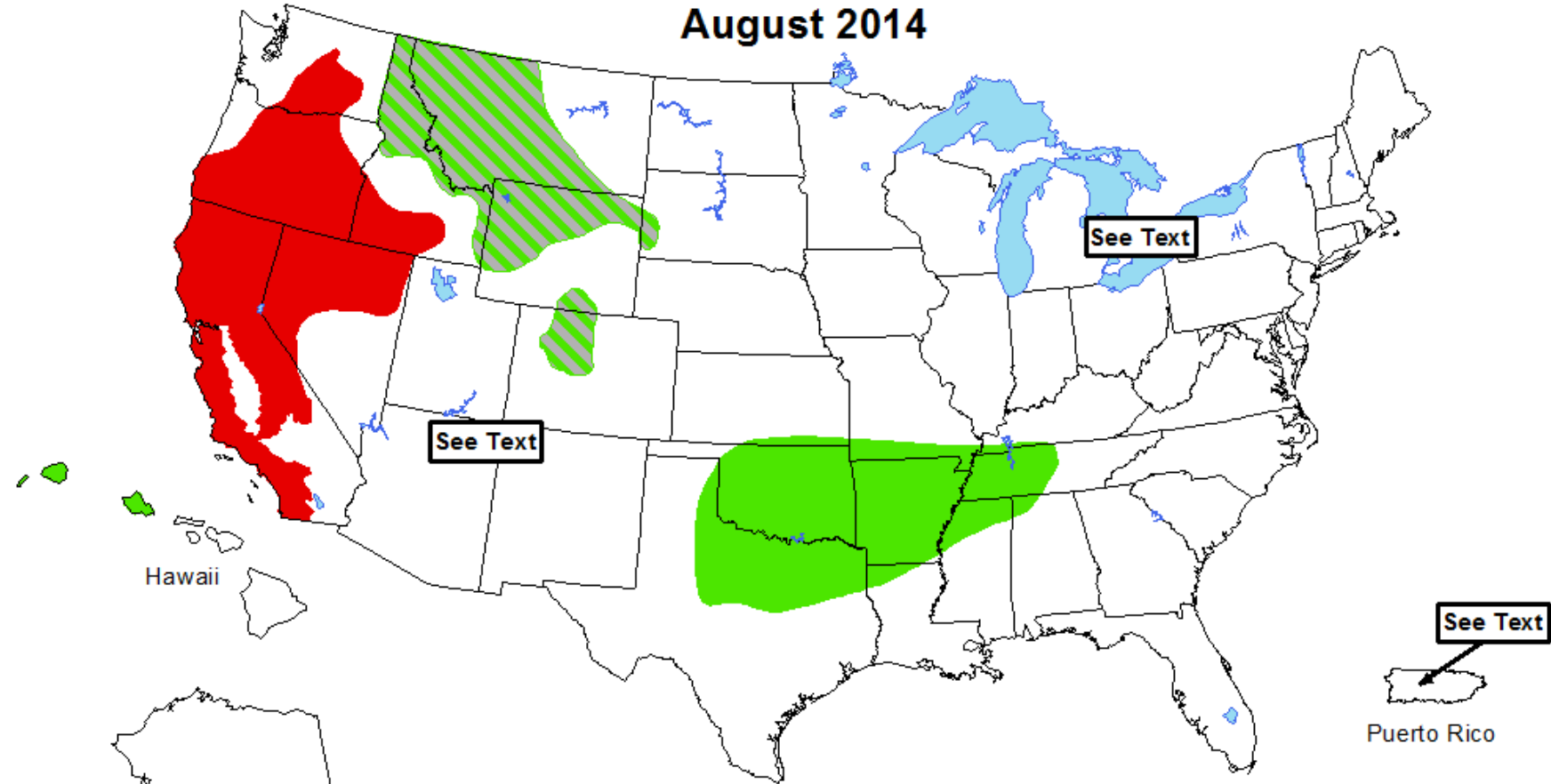
Timothy Brown

Desert Research Institute, Reno, Nevada

GOFC-GOLD IT; 30 July 2014
Greenbelt, MD



Significant Wildland Fire Potential Outlook August 2014



Significant Wildland Fire Potential

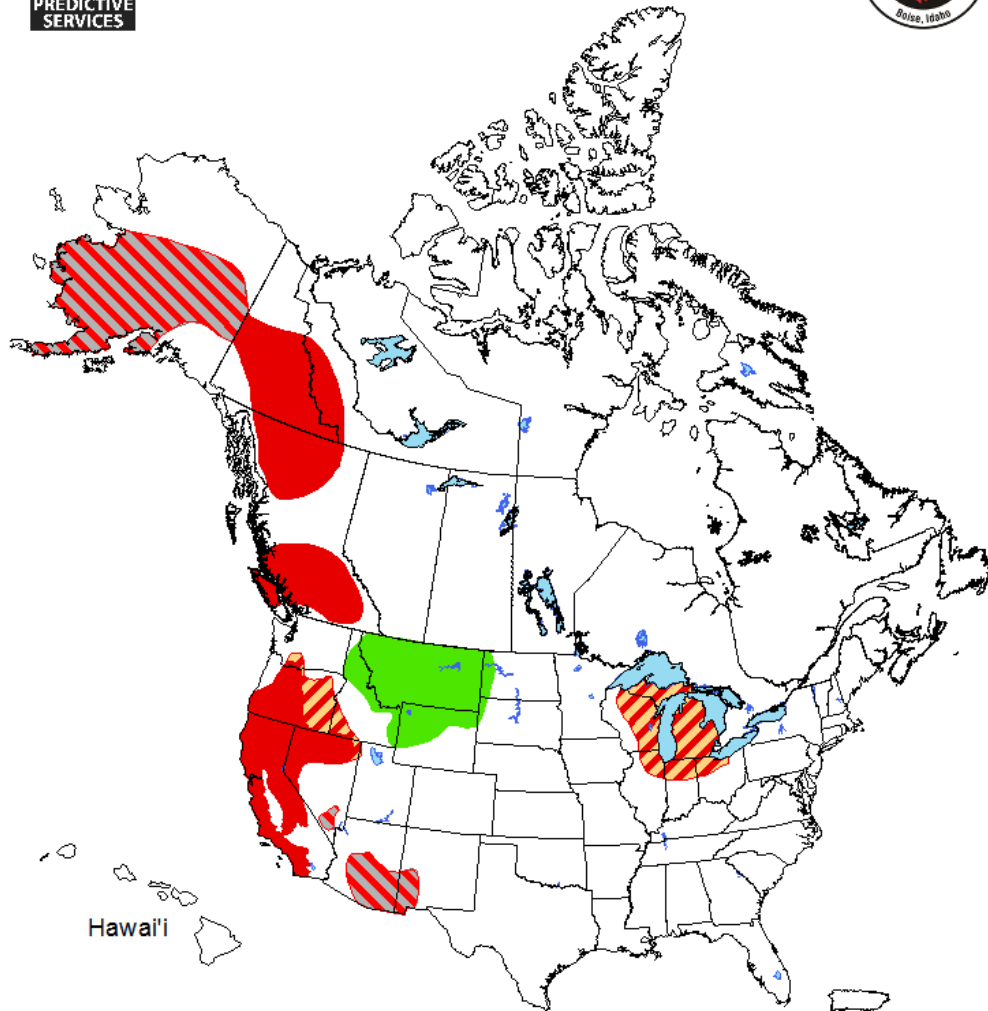
- | | | | |
|---|--------------|---|----------------------------|
|  | Above Normal |  | Increasing to Above Normal |
|  | Below Normal |  | Decreasing to Below Normal |
|  | Normal |  | Returning to Normal |



Map produced by
 Predictive Services,
 National Interagency
 Coordination Center
 Boise, Idaho
 Issued July 1, 2014
 Next issuance August 1, 2014

Above normal significant wildland fire potential indicates a higher than usual likelihood that wildland fires will occur and/or become significant events. Wildland fires are still expected to occur during forecasted normal conditions as would usually be expected during the outlook period. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.

Seasonal Wildland Fire Potential Outlook for the United States and Canada July & August 2014



Significant Wildland Fire Potential

- | | |
|--------------|----------------------------|
| Above Normal | Increasing to Above Normal |
| Below Normal | Decreasing to Below Normal |
| Normal | Returning to Normal |

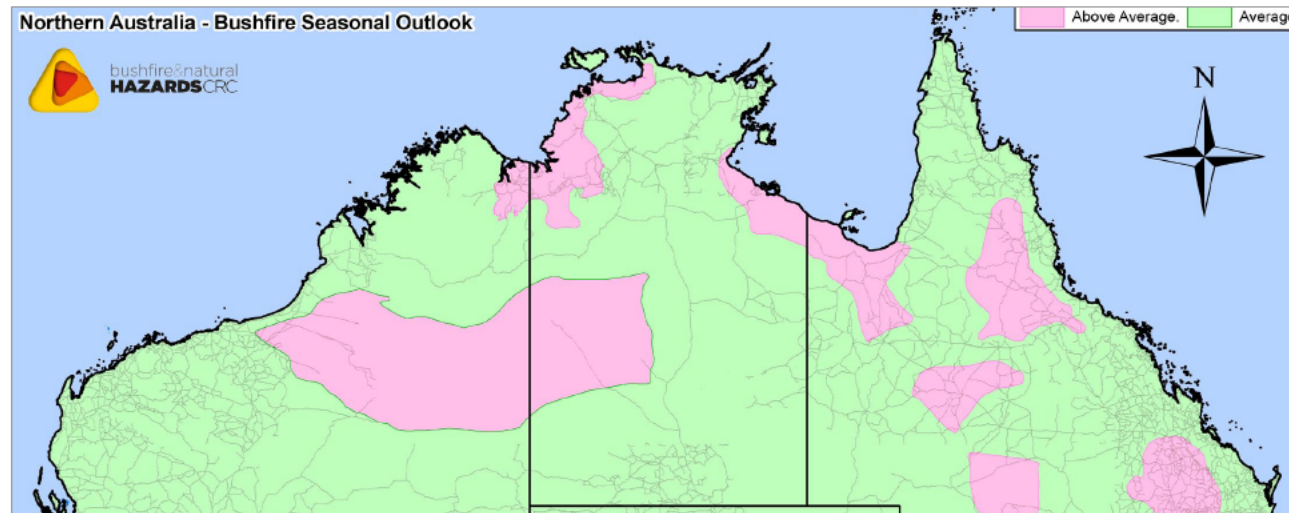
Above normal significant wildland fire potential indicates a higher than usual likelihood that wildland fires will occur and/or become significant events. Wildland fires are still expected to occur during forecasted normal conditions as would usually be expected during the outlook period. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.

Hawai'i

Puerto Rico

Australian seasonal outlooks

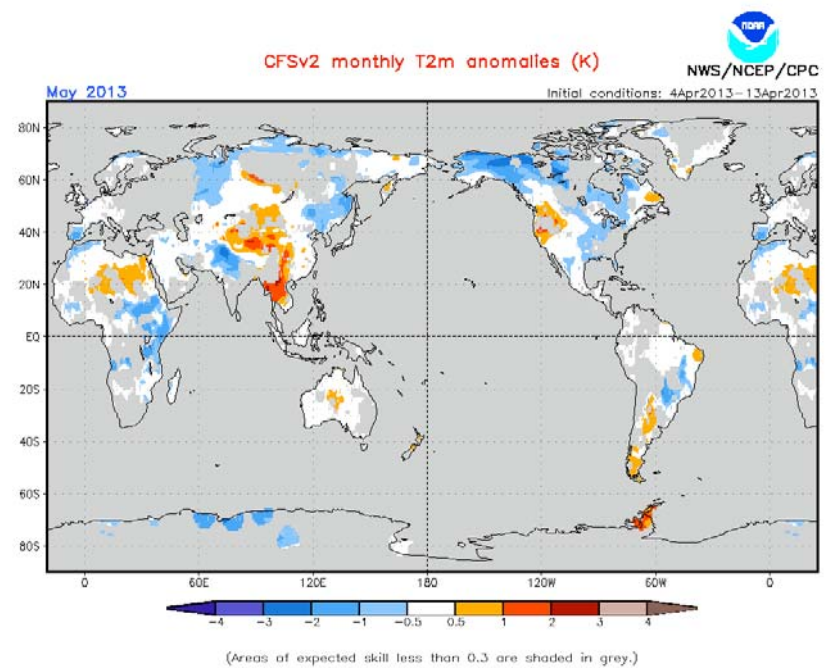
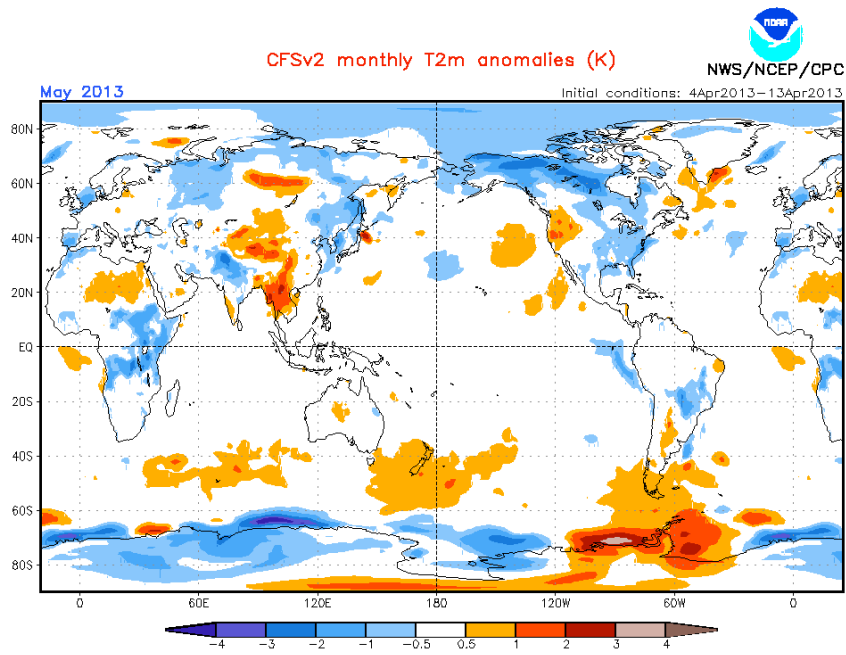
NORTHERN AUSTRALIA SEASONAL BUSHFIRE OUTLOOK 2014



Operational forecast models

- Climate Forecast System version 2
 - ~ 1 degree horizontal resolution
- Global Forecast System
 - 13-km in ~ November 2014

NCEP Climate Forecast System (v2)

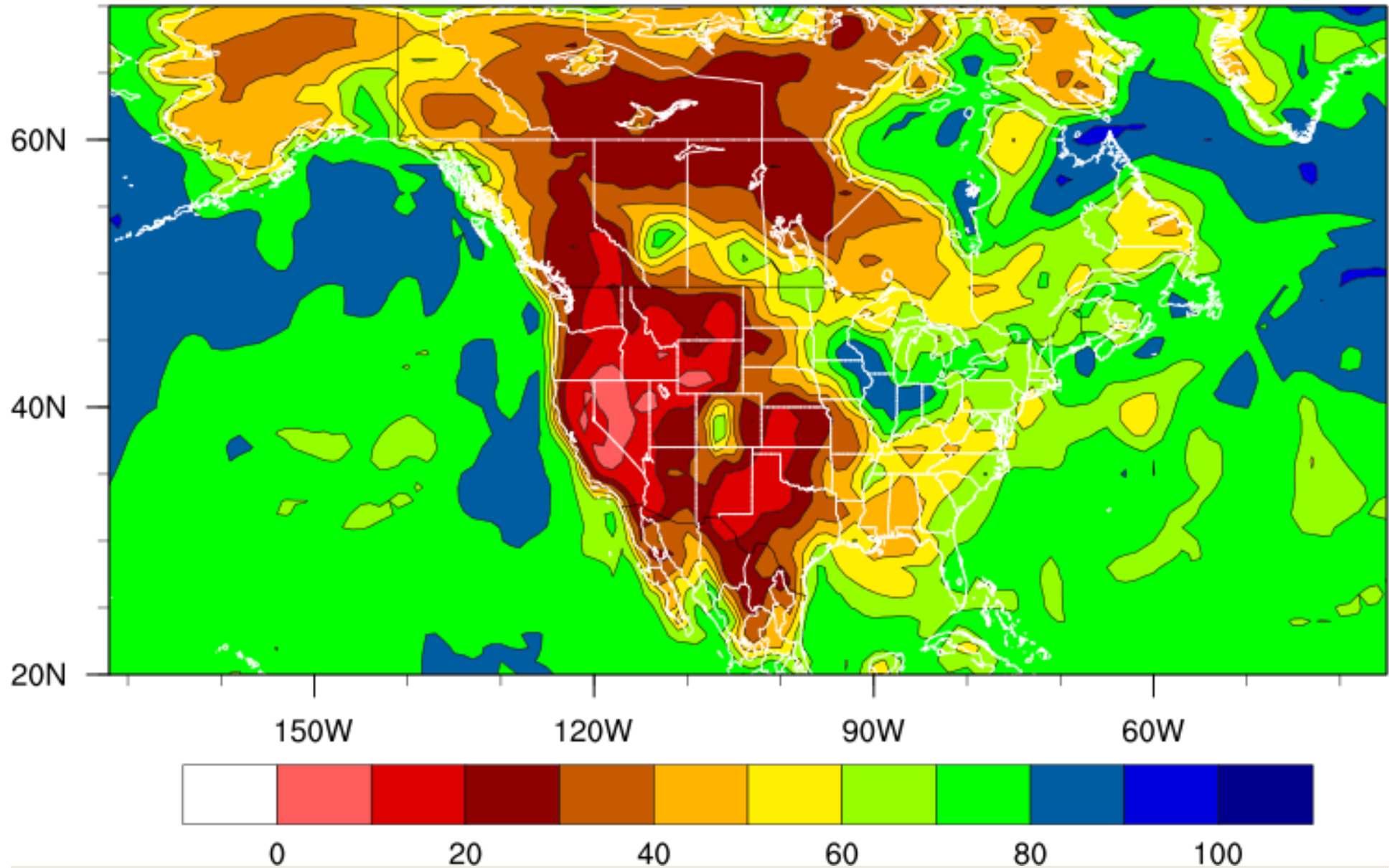


CFSv2 Forecast Grid Initialization - North America: 2014/07/26

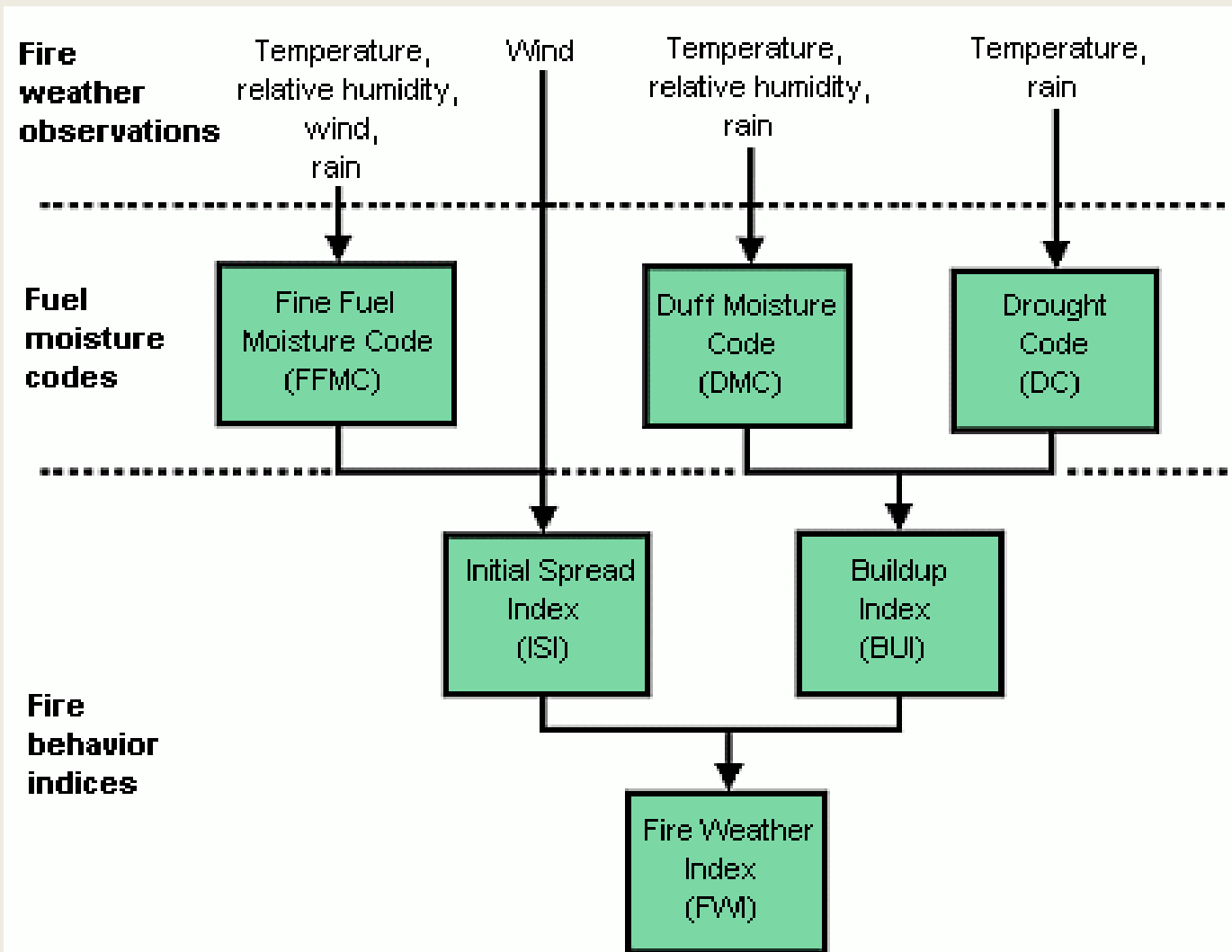
7-day Forecast Means - North America												
Mean Wind [700-500 mb] (mph)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean Wind/Height [700 mb] (mph/dam)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean/Anom Geopotential Height [500 mb] (dam)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean/Anom Relative Humidity [850 mb] (%)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean Relative Humidity [500 mb] (%)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean Relative Humidity [Surface] (%)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Max Relative Humidity [Surface] (%)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Min Relative Humidity [Surface] (%)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Accumulated Precipitation/Anomaly (in)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean Wind/Height [200 mb] (mph/dam)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean Wind/Height [300 mb] (mph/dam)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	
Mean/Anom Height/Temperature [850 mb] (dam/F)	Loop	Grid	26Jul	02Aug	09Aug	16Aug	23Aug	30Aug	06Sep	13Sep	20Sep	
			27Sep	04Oct	11Oct	18Oct	25Oct	01Nov	08Nov	15Nov	22Nov	

Minimum Relative Humidity [Surface] (%)

CFSv2 Initialization: 2014-07-26, Forecast Period: 2014-07-26 -> 2014-08-01

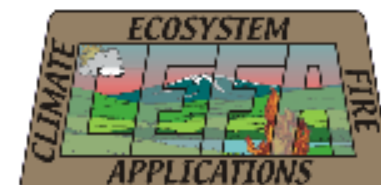
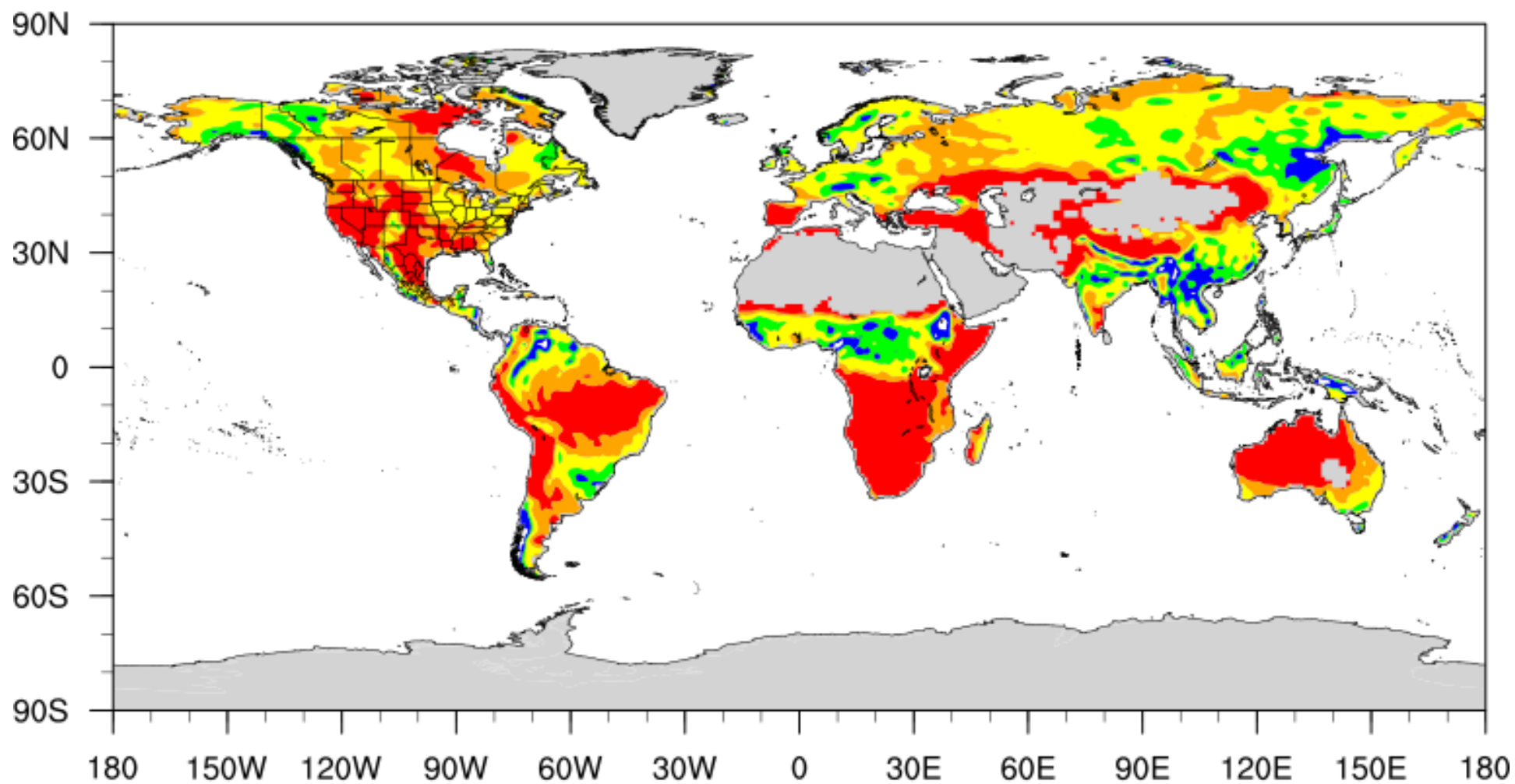


Canadian Fire Weather Index



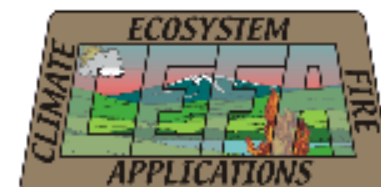
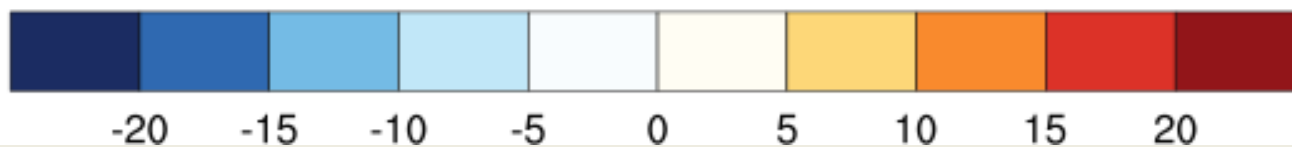
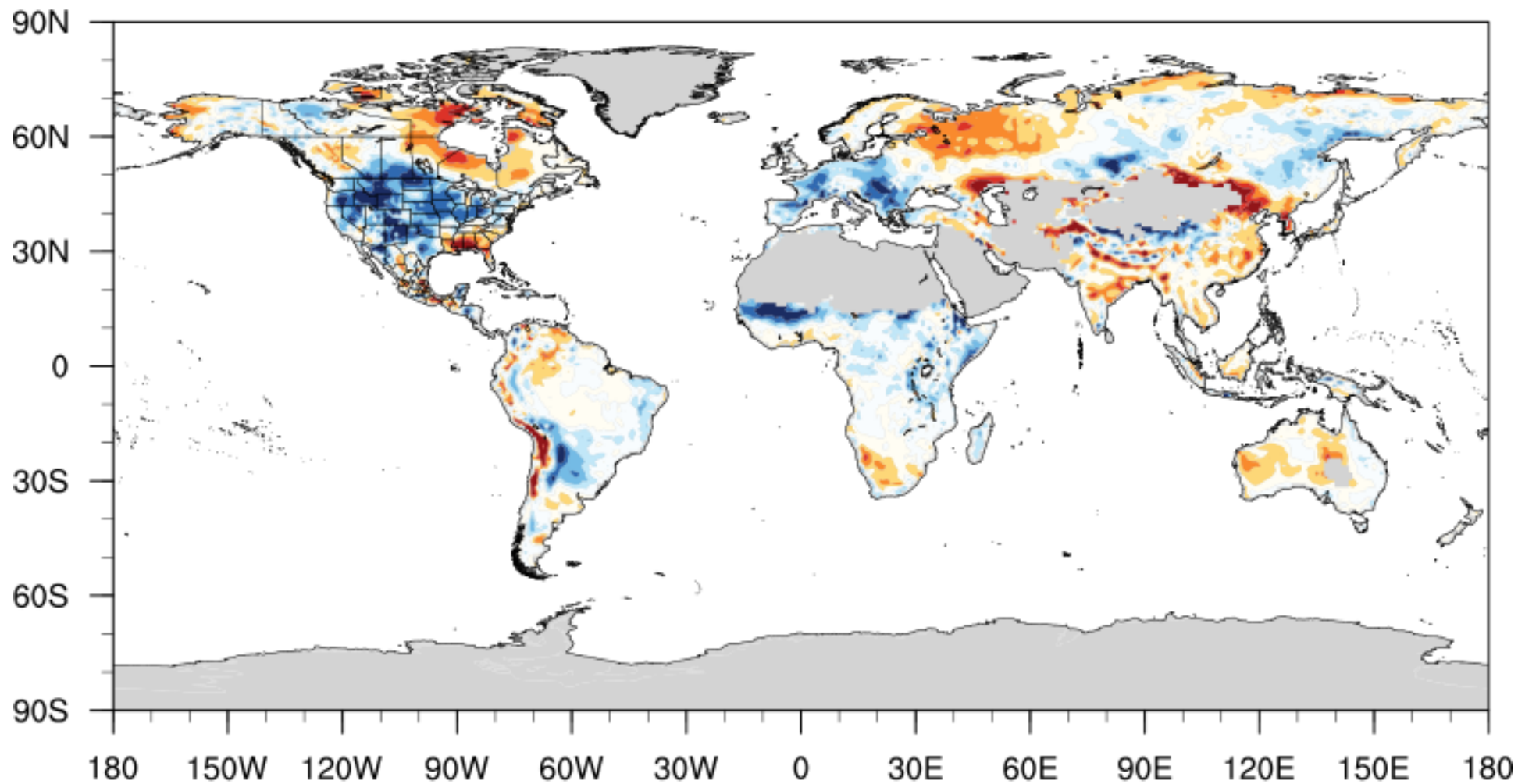
Fire Weather Index

CFSv2 Initialization: 2014-07-26, Forecast Period: 2014-07-26 -> 2014-08-25



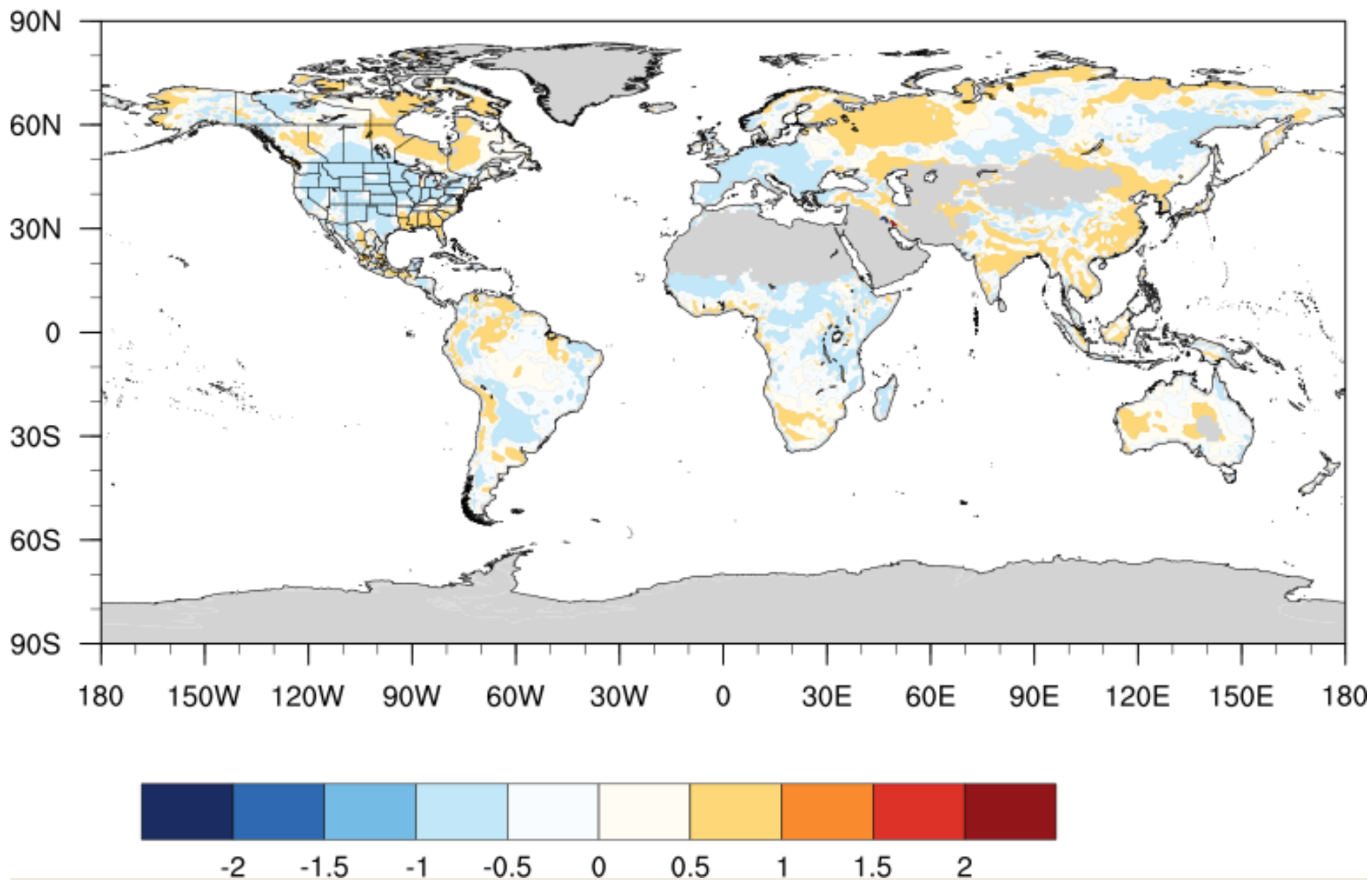
Fire Weather Index Anomaly

CFSv2 Initialization: 2014-07-26, Forecast Period: 2014-07-26 -> 2014-08-25



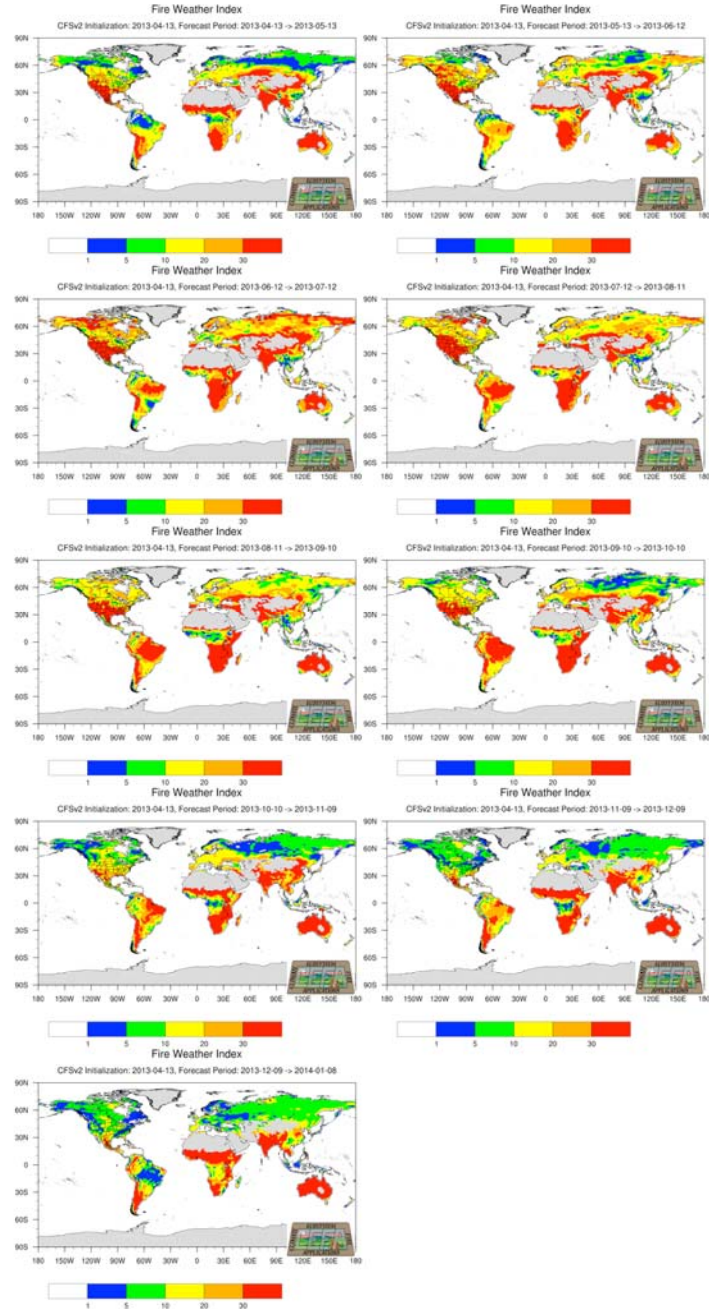
Standardized Fire Weather Index

CFSv2 Initialization: 2014-07-26, Forecast Period: 2014-07-26 -> 2014-08-25



Global Fire Weather Index

CFSv2 Forecast Grid Initialization: 2013/04/14



Fire weather climatology of Victoria



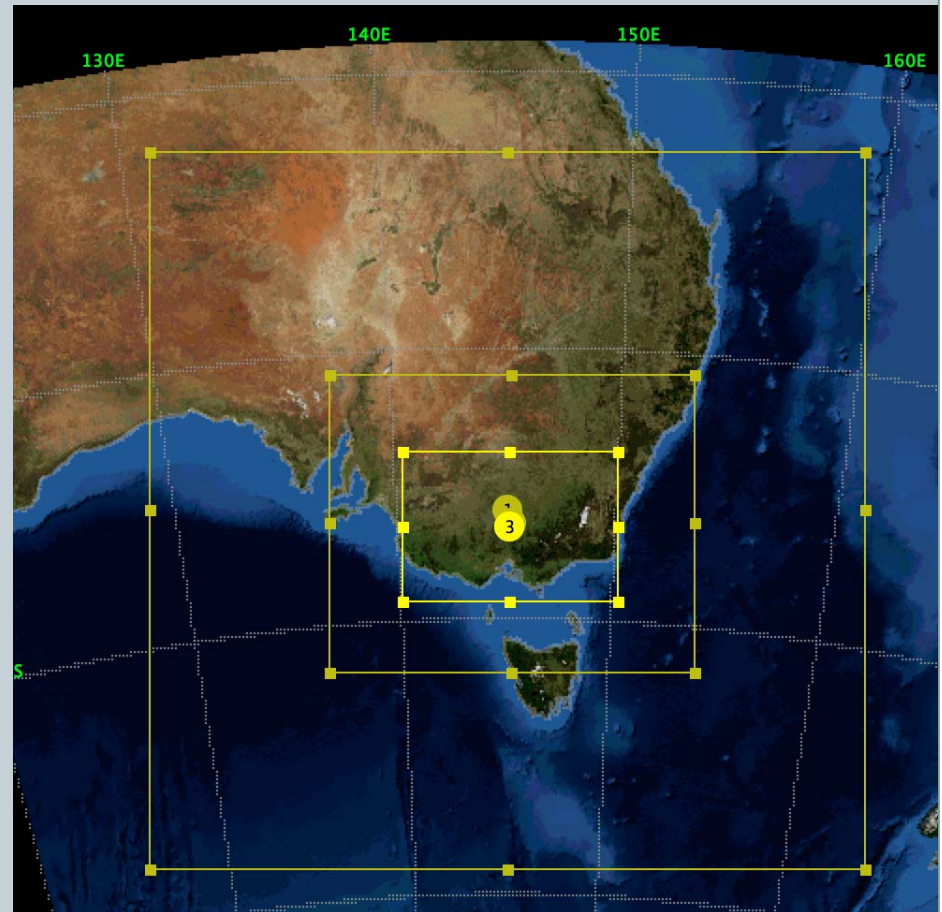
**TIM BROWN², GRAHAM MILLS¹, SARAH HARRIS¹,
DOMAGOJ PODNAR², MATT FEARON² AND HAUSS
REINBOLD²**

**¹SCHOOL OF GEOGRAPHY AND ENVIRONMENTAL SCIENCE,
MONASH UNIVERSITY, CLAYTON
²DESERT RESEARCH INSTITUTE, UNIVERSITY OF NEVADA,
RENO**



Model choice and configuration

- **WRF (V3.5.1)**
- **Initial state and lateral boundary conditions from reanalyses**
- **36, 12, and 4km grids**
- **Re-initialise every 14 days, integrate to 15 days, discard “spinup” Day1**
- **Physics options**
 - **Thompson et al microphysics**
 - **Kain-Fritsch cumulus parameterisation**
 - **RRTM longwave radiation**
 - **Goddard short wave radiation**
 - **NOAH land surface scheme**
 - **Yonsei University PBL**
 - **Combined diffusion options**
- **Grid nudging above level 10**

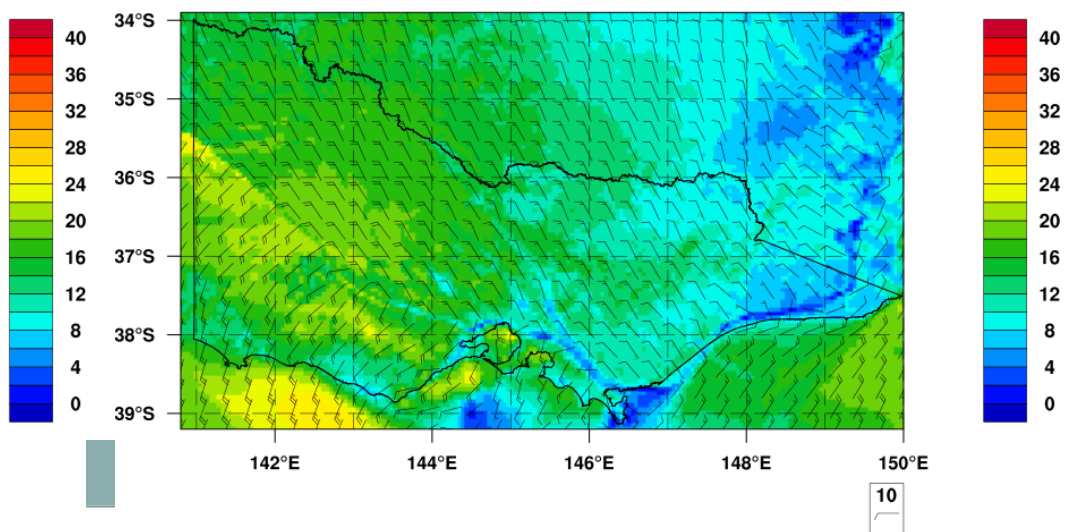
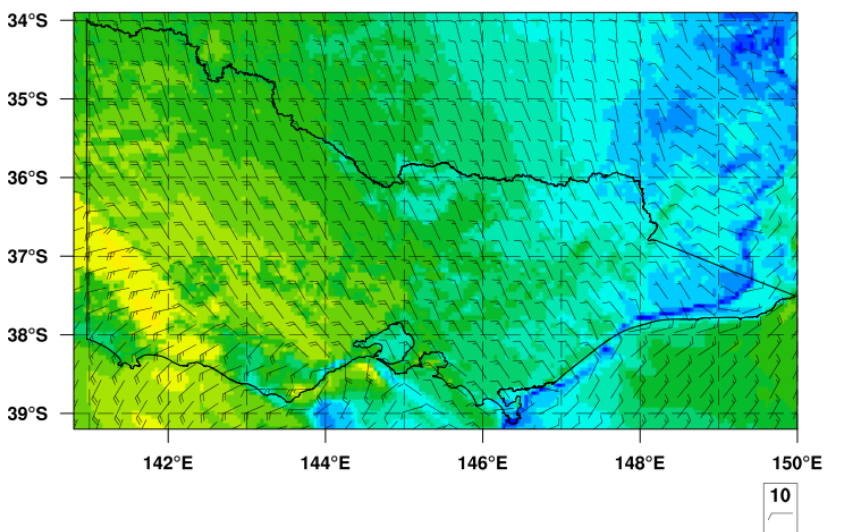
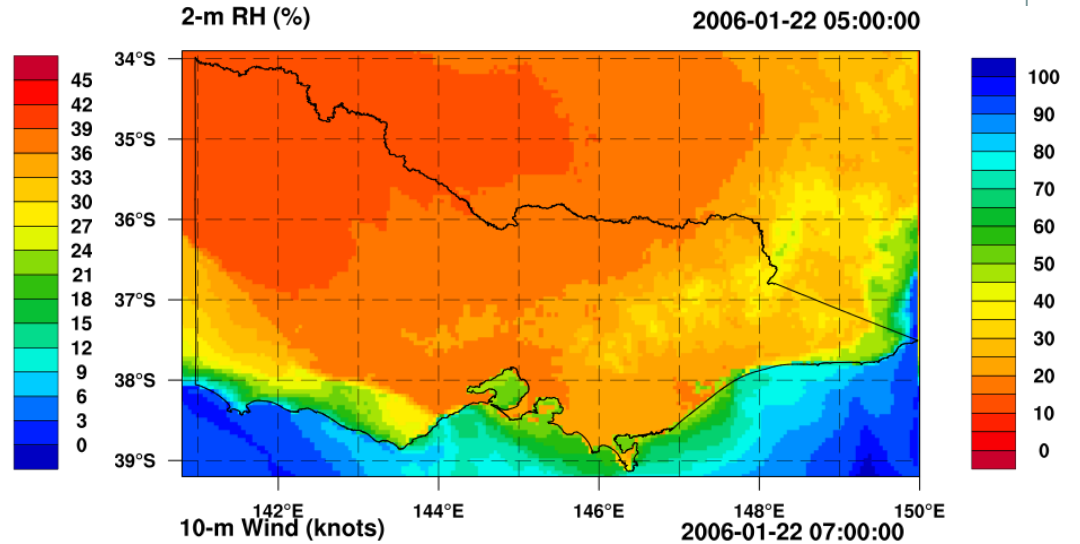
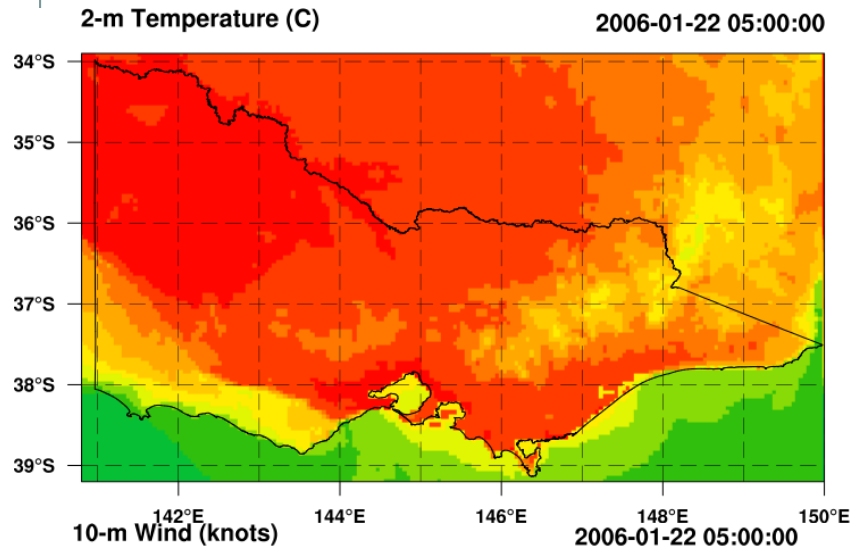


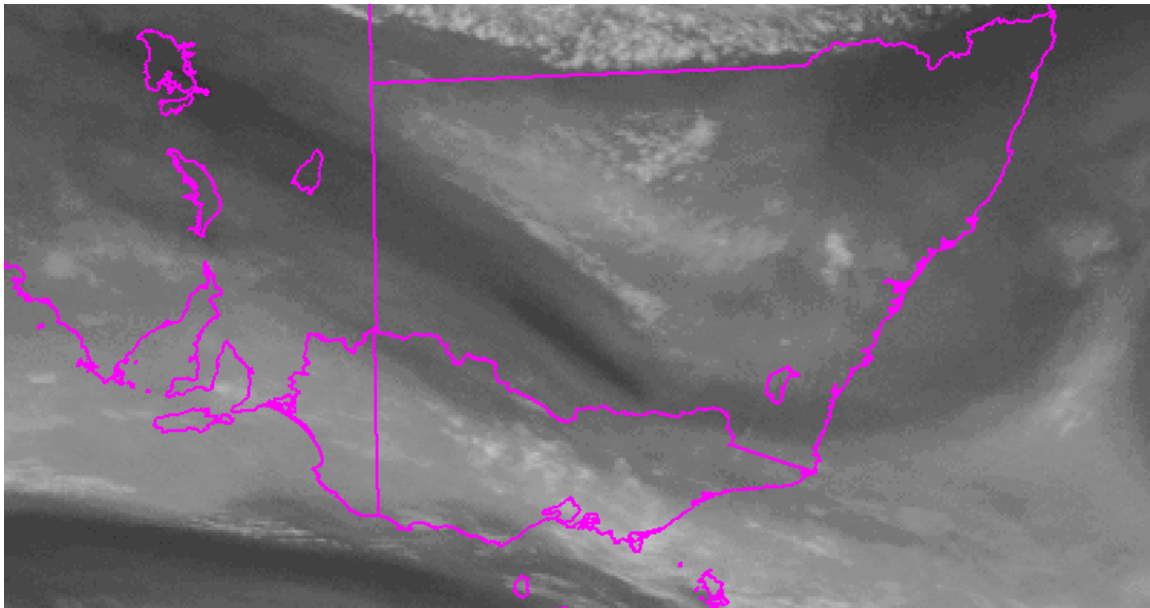
Outputs



- **1972-2012**
- **4-km spatial resolution covering Victoria**
- **Format – compatible with Phoenix**
- **Hourly – Temperature, relative humidity, wind speed, wind direction, FFDI, precipitation**
- **Daily – Precipitation, KBDI and Drought Factor**
- **Bias-corrected 2m temperature and humidity fields; 10m wind speed**

Modelled FFDI ~ 51

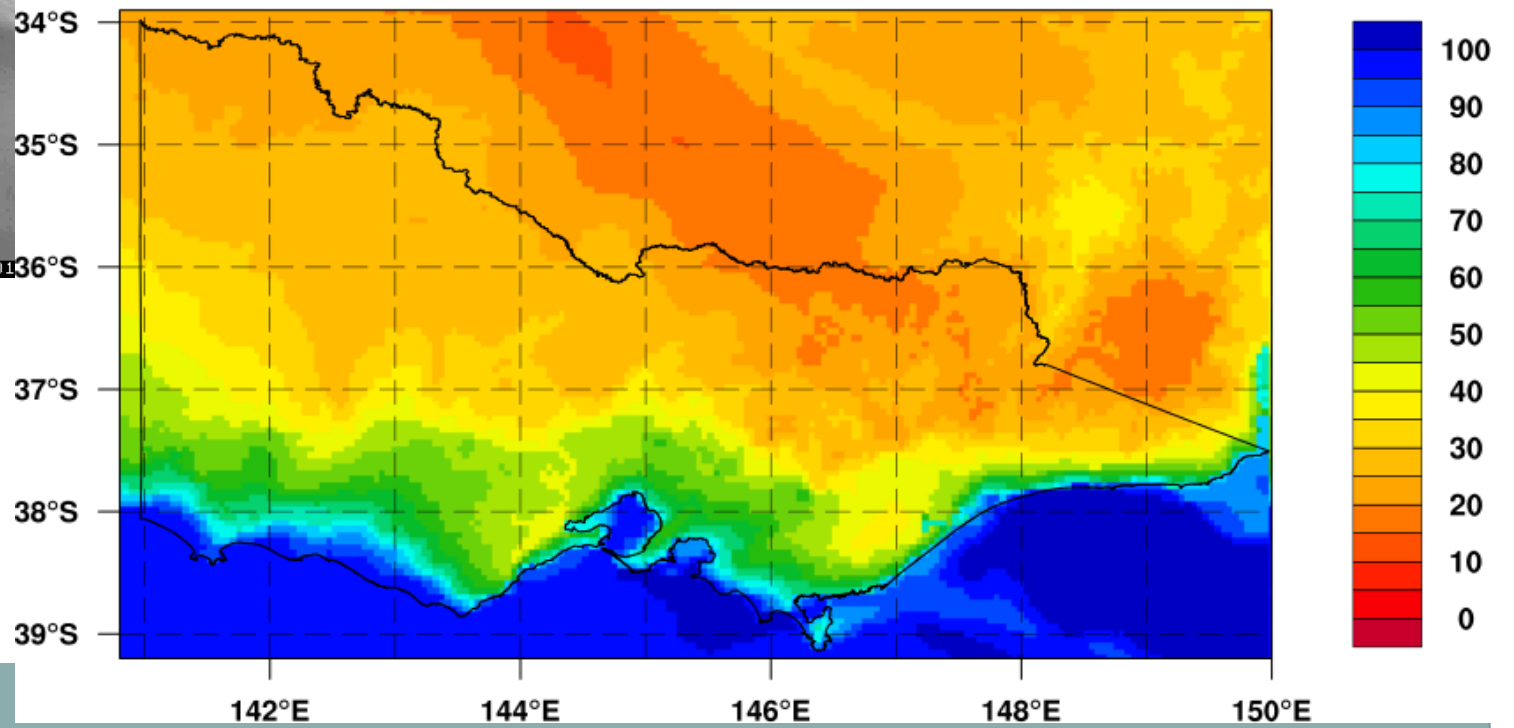




The dry slot

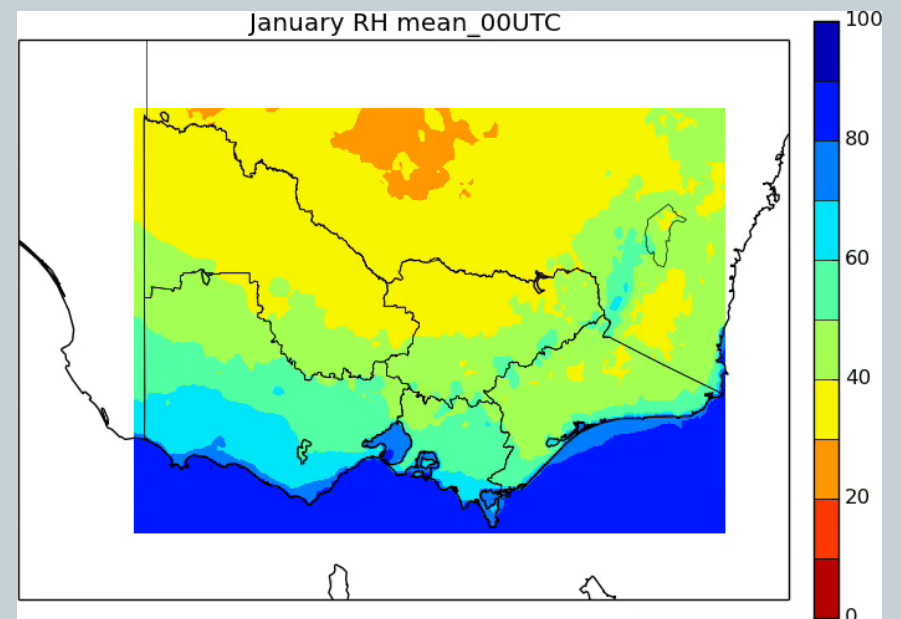
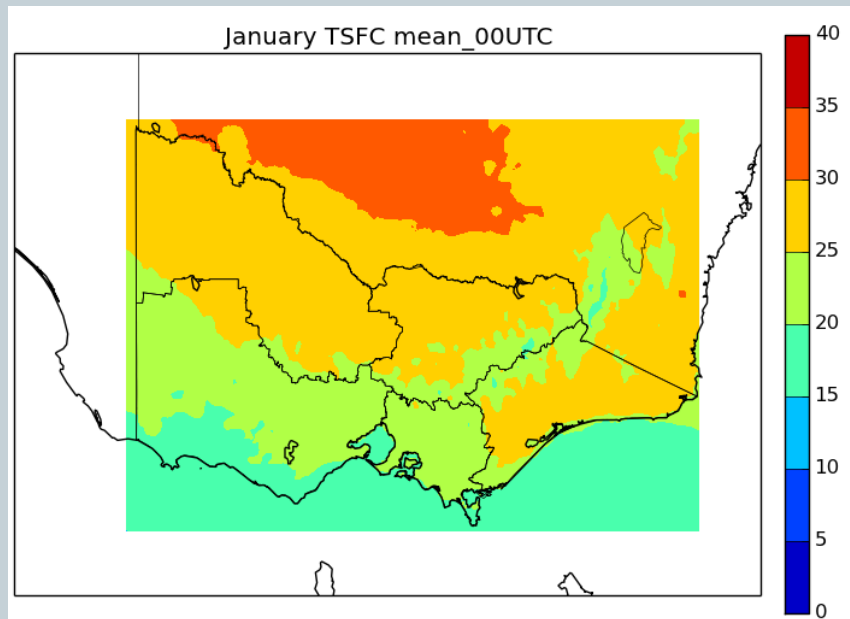
2-m RH (%)

2003-01-18 00:00:00

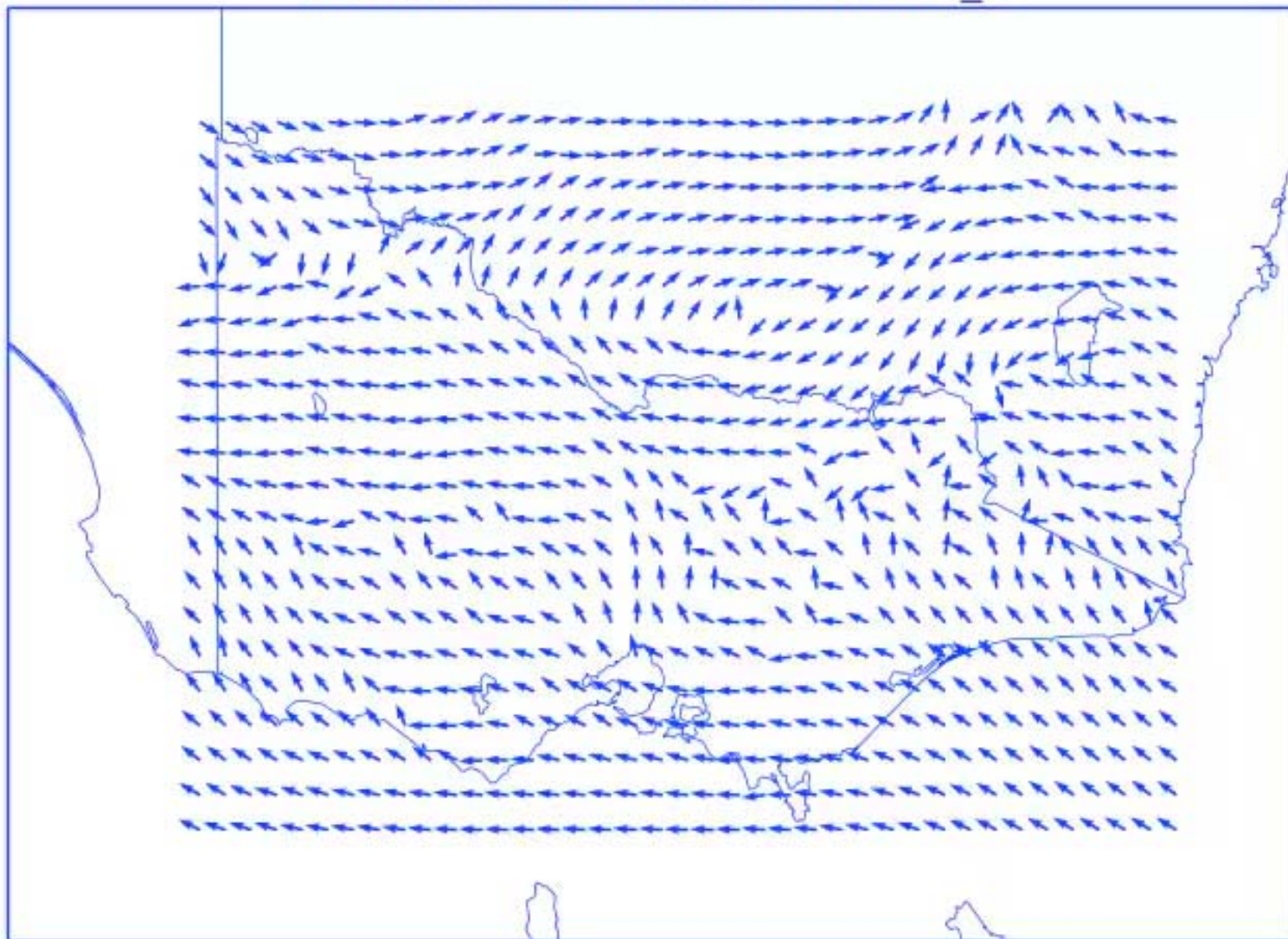


1 0001 GMS-5 04 17 JAN 03 01

Diurnal cycle



WDIR 2009-02-01 01:00:00 UTC_2



FFDI max and frequency analysis

