

# Weather Forecasting and Water Supply at Seattle Public Utilities

Seattle Public Utilities and Neighborhoods Committee

**August 11, 2015**



# Seattle, WA Weather

1:39 pm PDT [Print](#)

DAY	COND	HIGH	LOW	DESCRIPTION	PRECIP	WIND
<b>TODAY</b> Aug 4		77°F	56°	Partly Cloudy	0%	WSW 9 mph
<b>WED</b> Aug 5		69°	56°	PM Showers	50%	SSW 12 mph
<b>THU</b> Aug 6		76°	56°	Mostly Sunny	10%	WNW 6 mph
<b>FRI</b> Aug 7		81°	59°	Sunny	0%	NNW 8 mph
<b>SAT</b> Aug 8		75°	57°	AM Clouds/PM Sun	20%	SSW 8 mph
<b>SUN</b> Aug 9		76°	58°	Partly Cloudy	20%	SSW 5 mph
<b>MON</b> Aug 10		76°	57°	Partly Cloudy	10%	WSW 6 mph
<b>TUE</b> Aug 11		77°	57°	Sunny	10%	NNW 7 mph
<b>WED</b> Aug 12		76°	57°	Mostly Sunny	20%	W 7 mph
<b>THU</b> Aug 13		77°	57°	Sunny	10%	WNW 6 mph

Next 5 Days ↓

[Today](#)
[Hourly](#)
[5 Day](#)
[10 Day](#)
[Weekend](#)
[Maps](#)
[Monthly](#)
[More Forecasts](#)



Ensemble and Deterministic Forecasts issued 4 August 2015 00 UTC

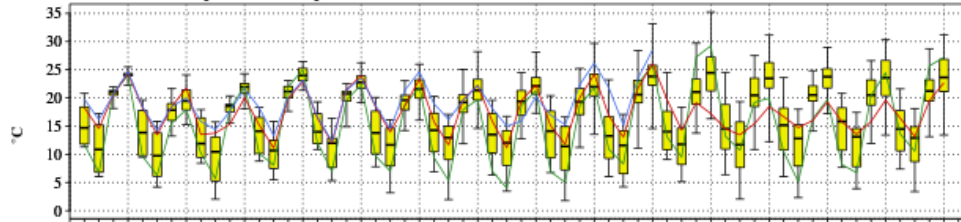
Prévision d'ensemble et déterministe émises le 4 Août 2015 00 UTC

for/pour

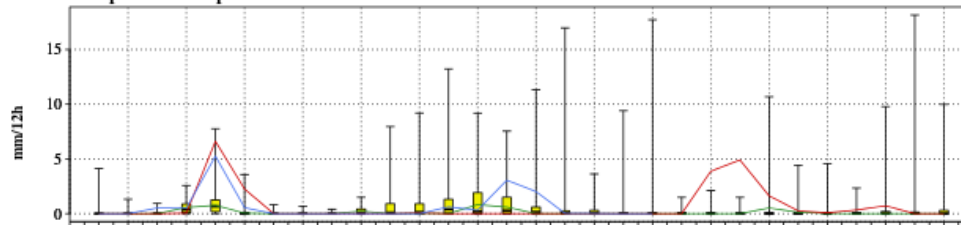
NAEFS / SPENA

**SEATTLE (SEA) 47.45 N 122.3 W/O**

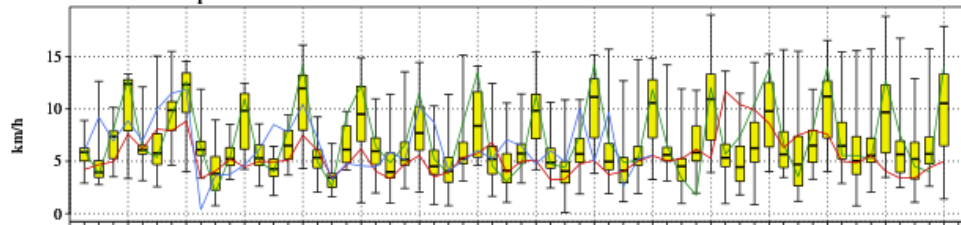
Surface Air Temperature/Température de l'air à la surface



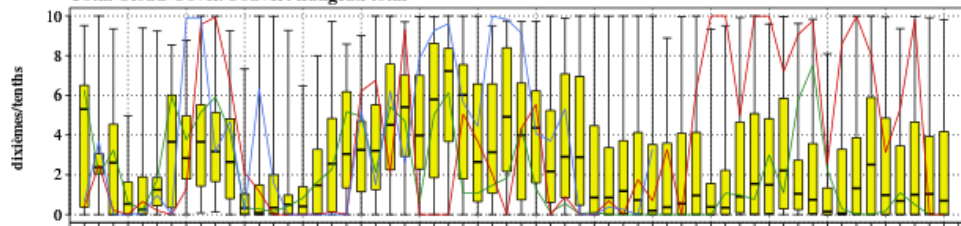
Precipitation/Précipitations



Surface Wind Speed/Vitesse du vent à la surface



Total Cloud Cover/Couvert nuageux total



04 05 06 07 08 09 10 11 12 13 14 15 16 17 18

August/Août 2015

max  
75%  
median/médiane  
25%  
min

Global Model / Modèle global CMC  
Control Member / Membre contrôle CMC  
Control Member / Membre contrôle NCEP

# Overview

- Why and how SPU looks at weather
- Tools for monitoring and predicting
- Research partnerships and city-wide collaboration
- The latest forecast

# SPU Weather



# SPU Weather

## Precipitation

- Short-duration, high-intensity (thunderstorms)
- Long-duration (atmospheric rivers)

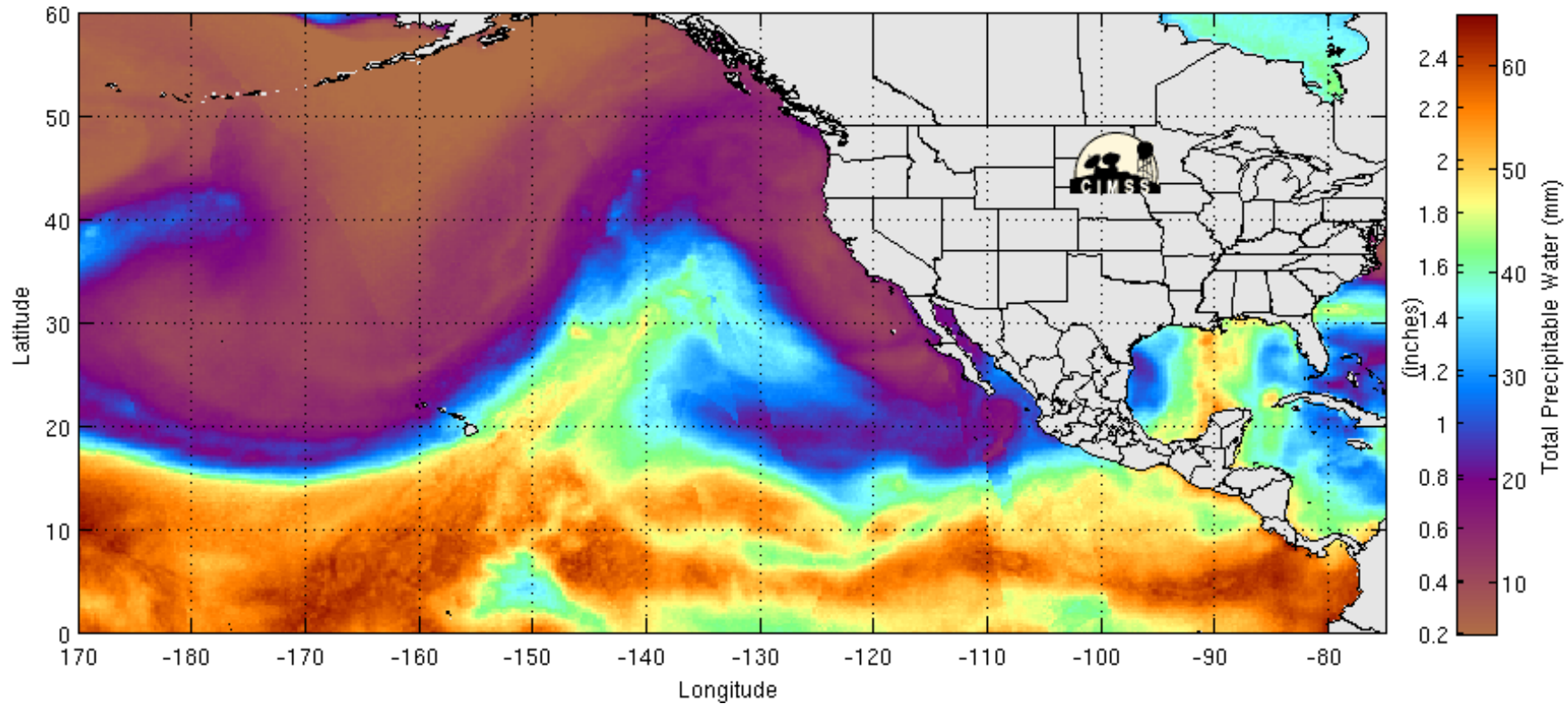
## Temperature

- Heat/demand
- Freezing/snow

## Wind, Fire, etc.



Morphed composite: 2015-03-13 00:00:00 UTC



# SPU Weather

## Teleconnections

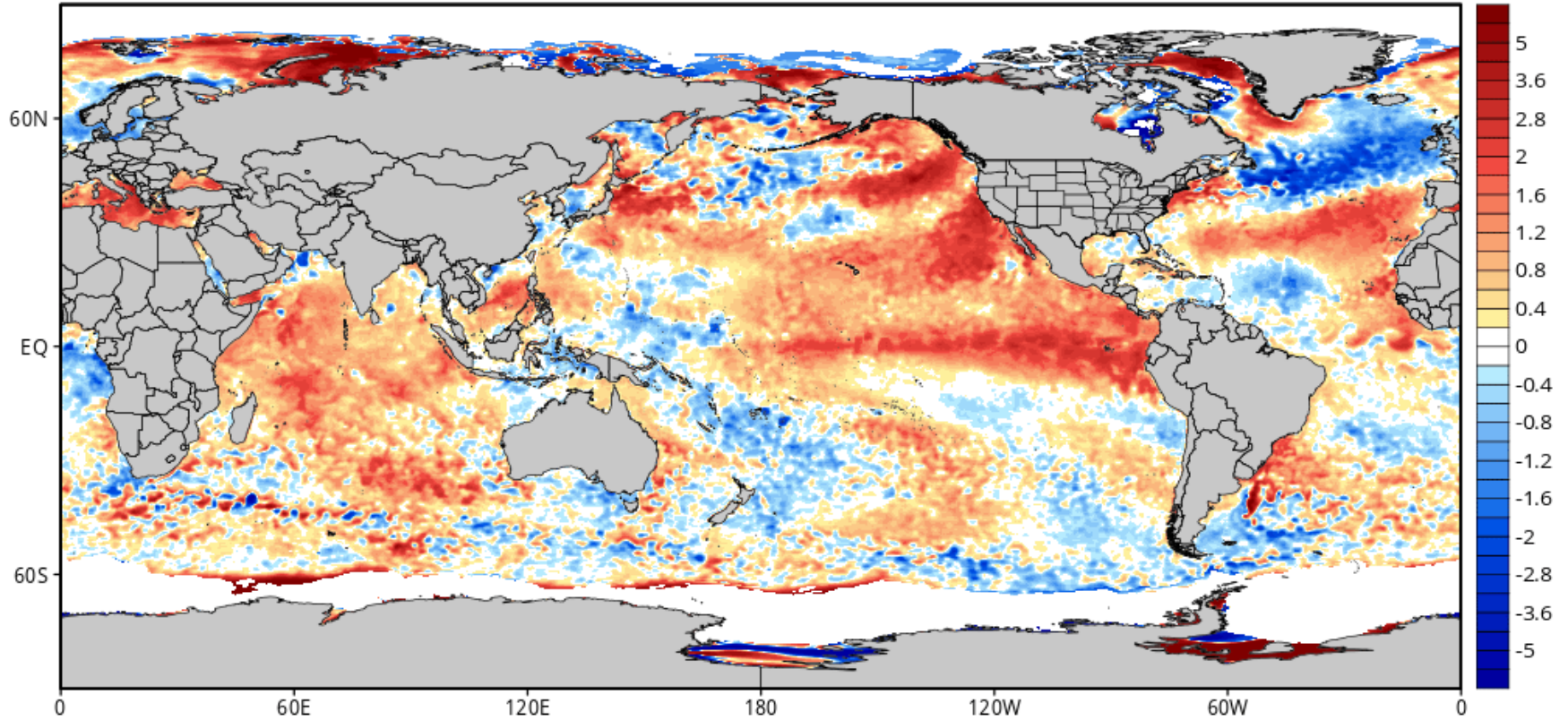
- El Niño/La Niña (ENSO)
- “The Blob”
- Pacific Decadal Oscillation (PDO)
- Quasi-Biennial Oscillation (QBO)



# CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)

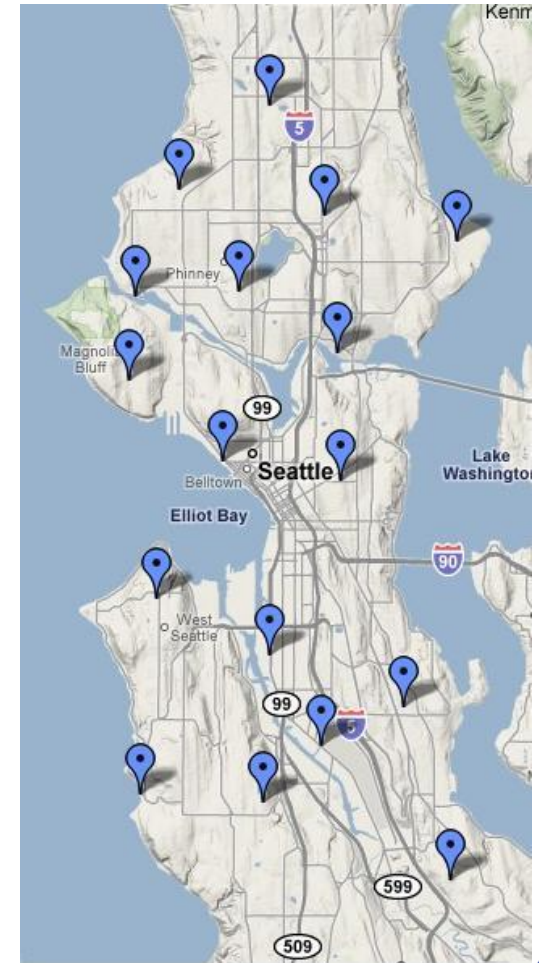
Analysis Time: 12z Aug 04 2015

Levi Cowan | tropicaltidbits.com



# Monitoring Tools

- National Weather Service
  - Sea-Tac, Boeing Field, Sand Point
  - Radar (Camano Island, Langley Hill)
- SPU Rain Gages
- NRCS Snotel
- USFS lightning



# Forecasting Tools

## Short-range

- Seattle RainWatch (1-hour)
- High-Resolution Rapid Refresh (3- to 15-hours)

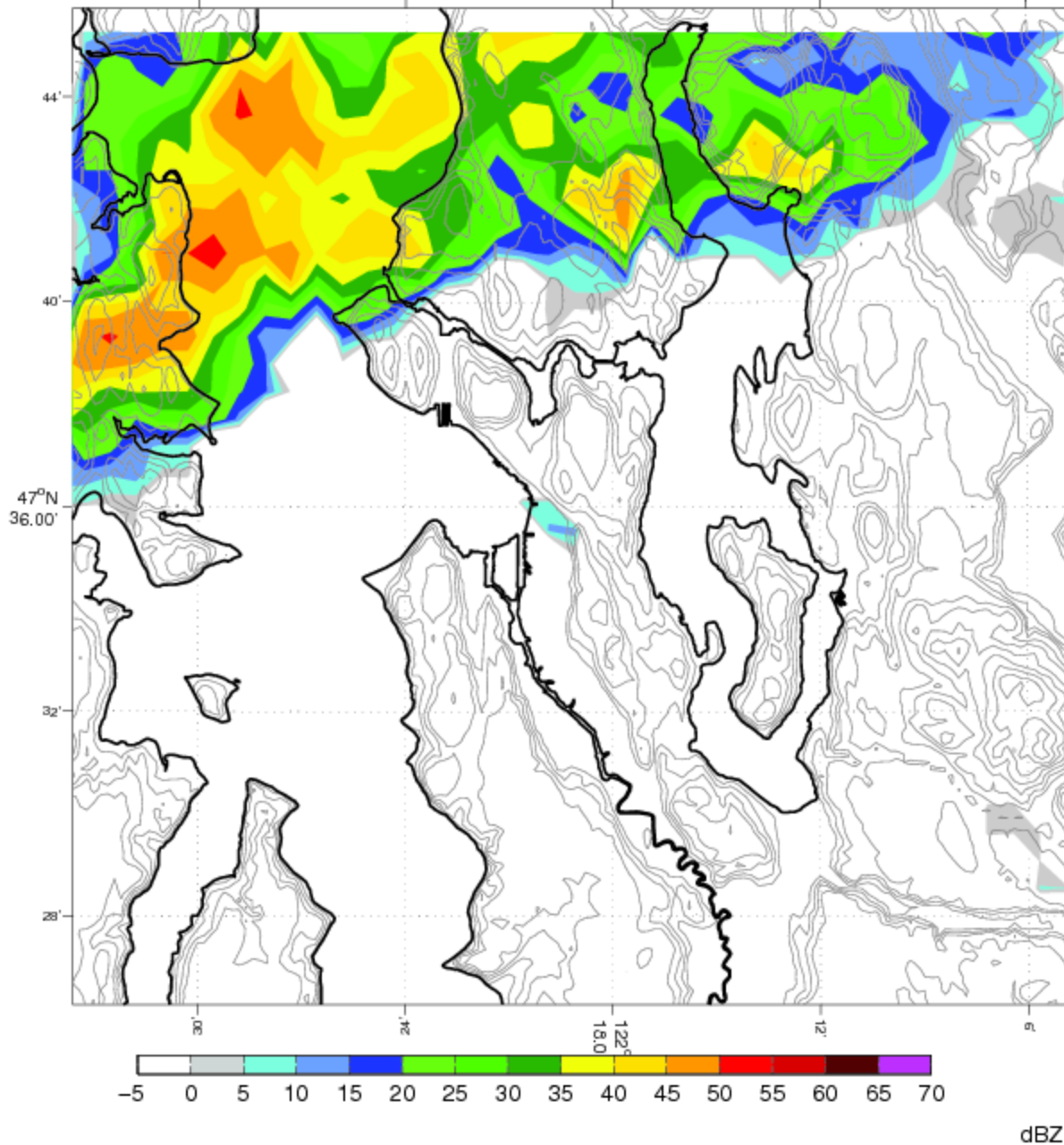
## Medium-range

- National Weather Service (up to 7-days)
- Univ. of Wash., European, Canadian (up to 16-days)

## Long-range

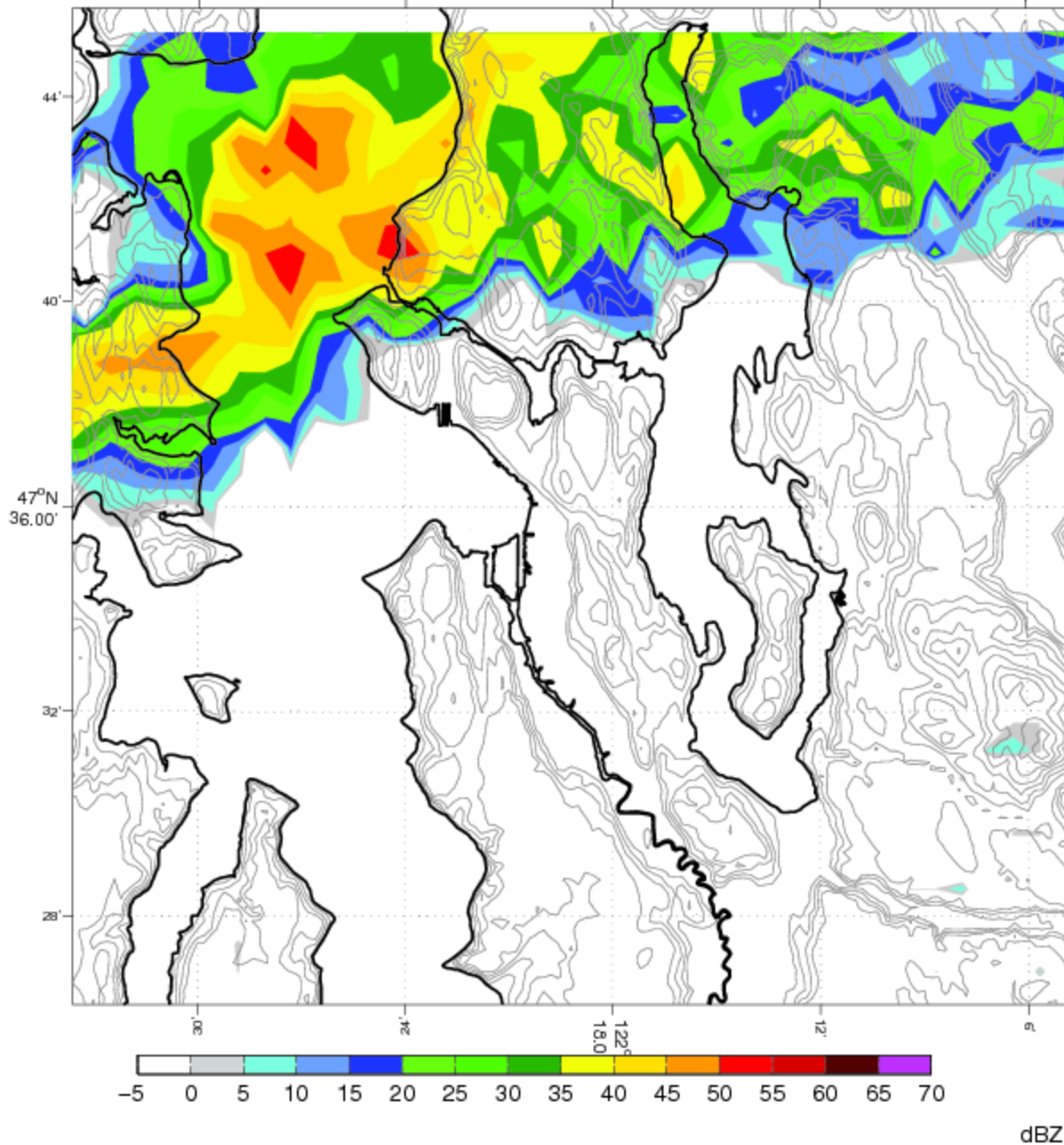
- NOAA Climate Prediction Center (seasonal)

Camano Island Radar (Valid: 2014-Sep-02 6:03 PM Local)

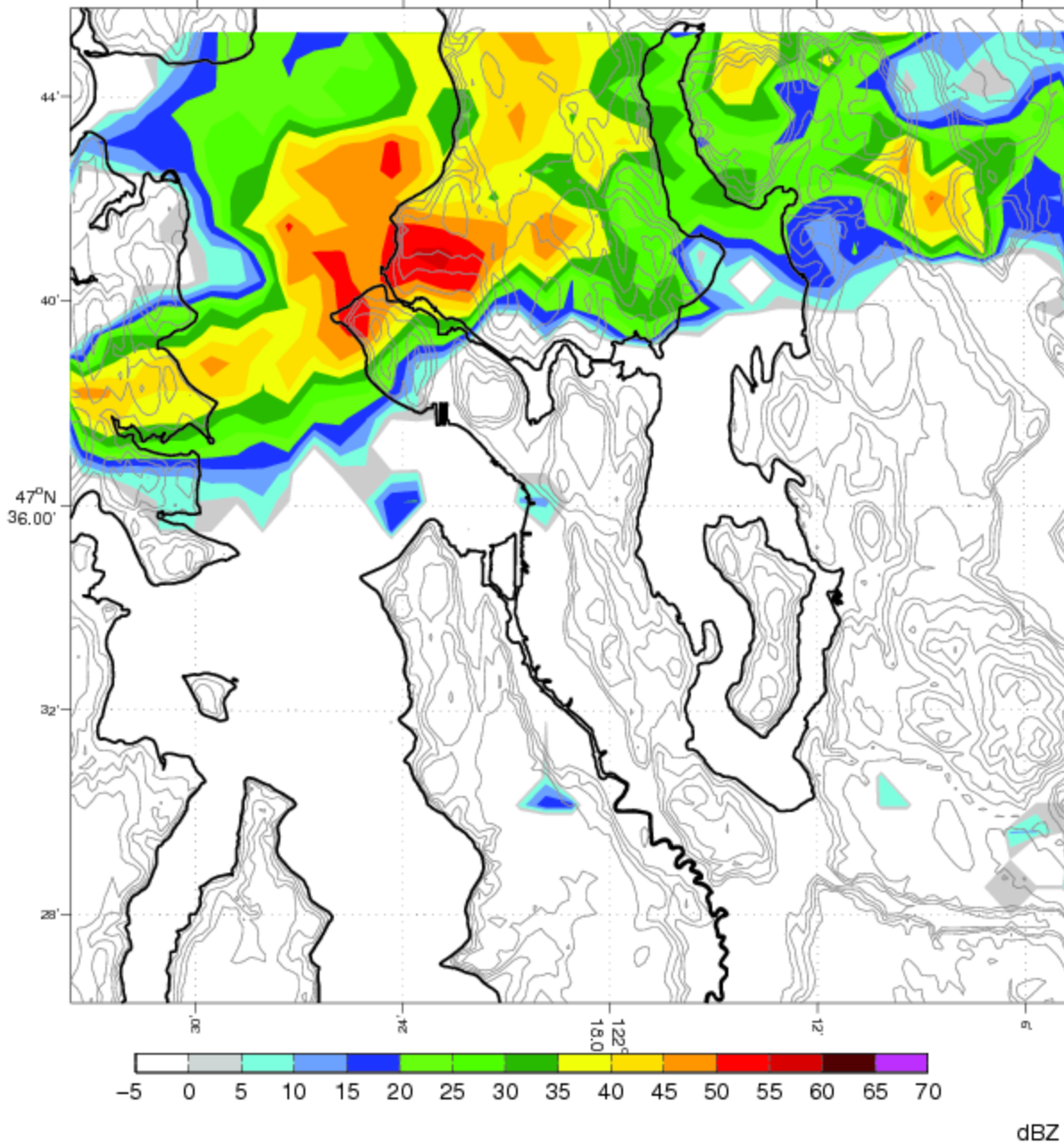




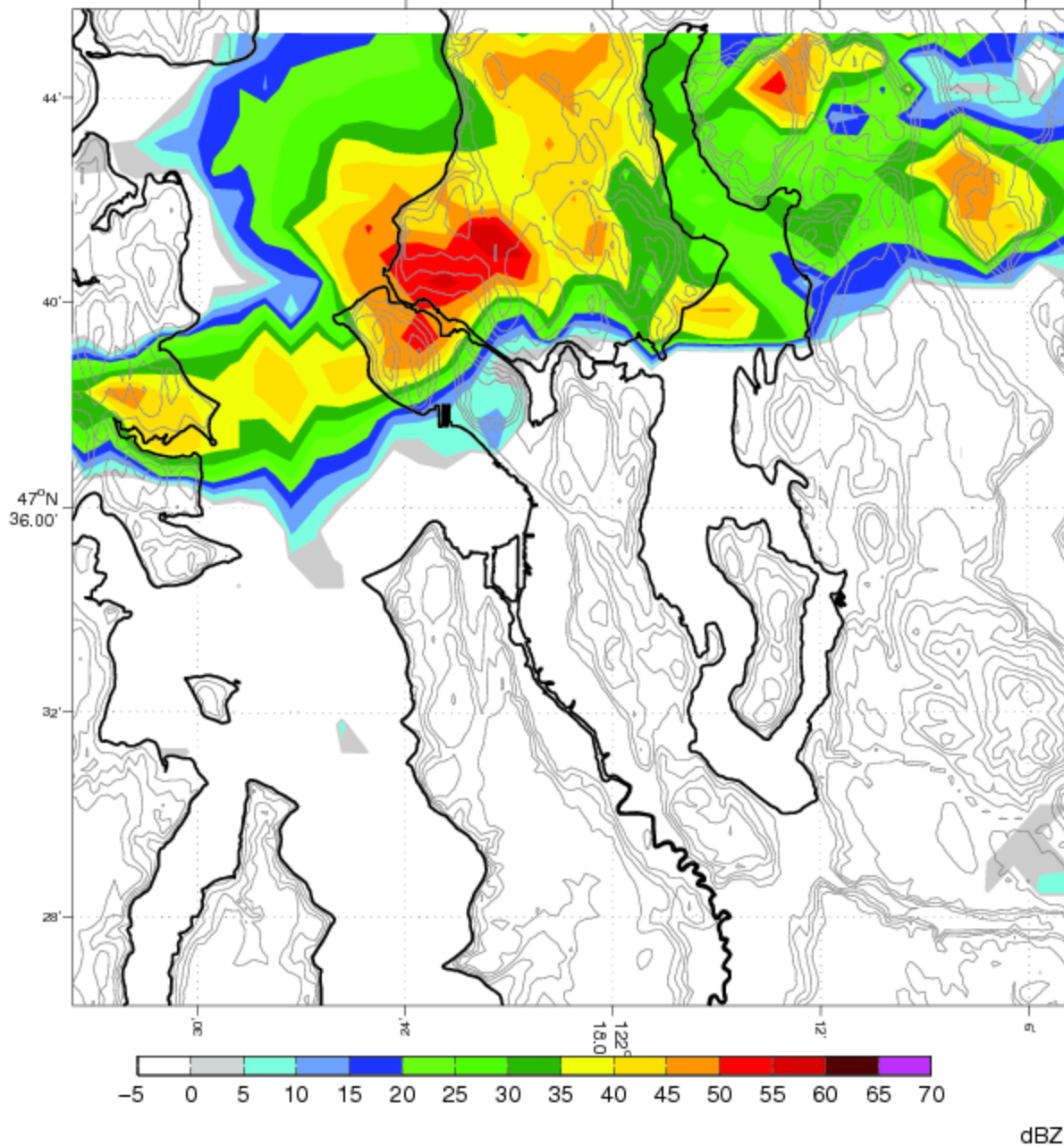
Camano Island Radar (Valid: 2014-Sep-02 6:07 PM Local)



Camano Island Radar (Valid: 2014-Sep-02 6:11 PM Local)

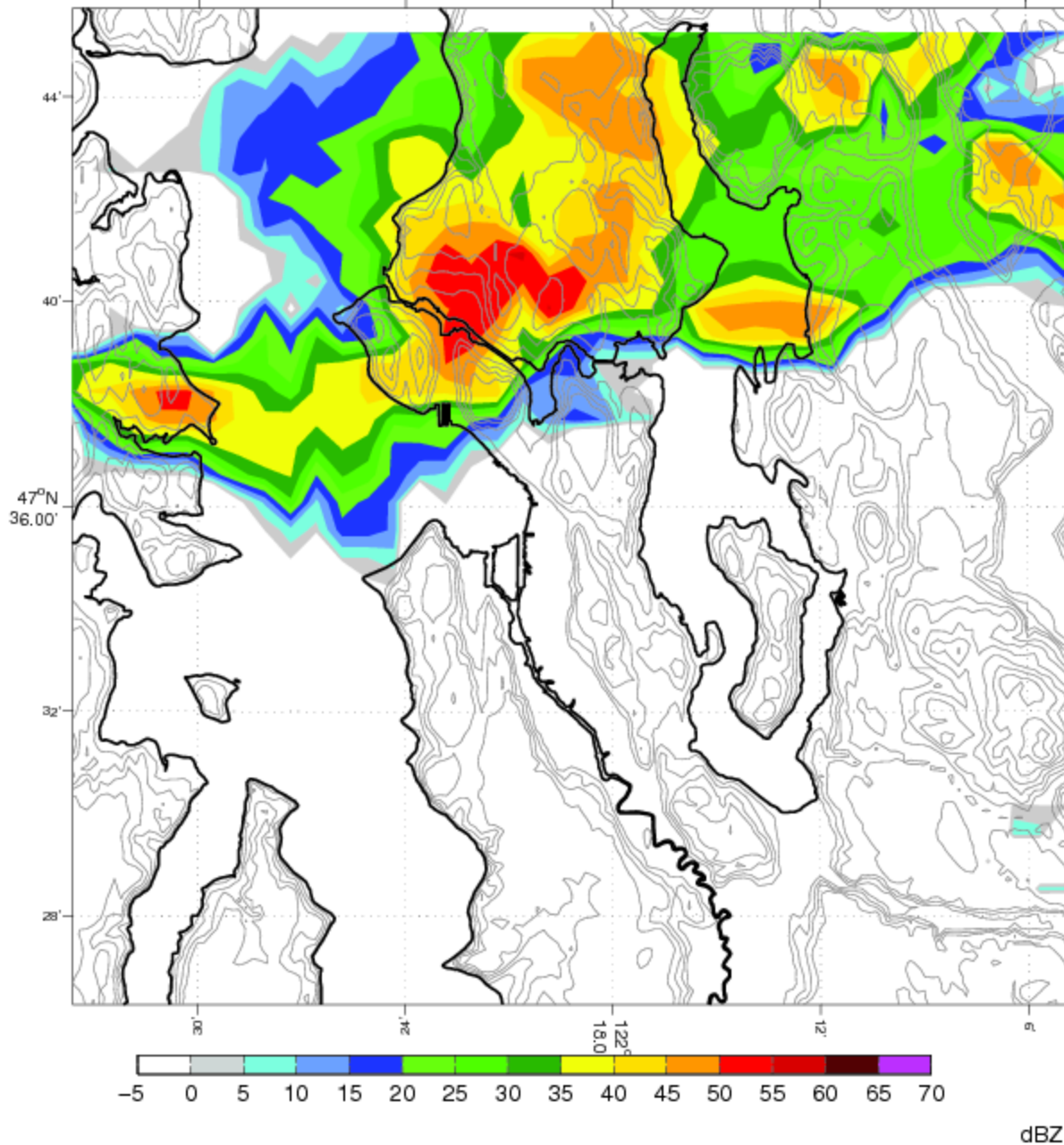


Camano Island Radar (Valid: 2014-Sep-02 6:15 PM Local)

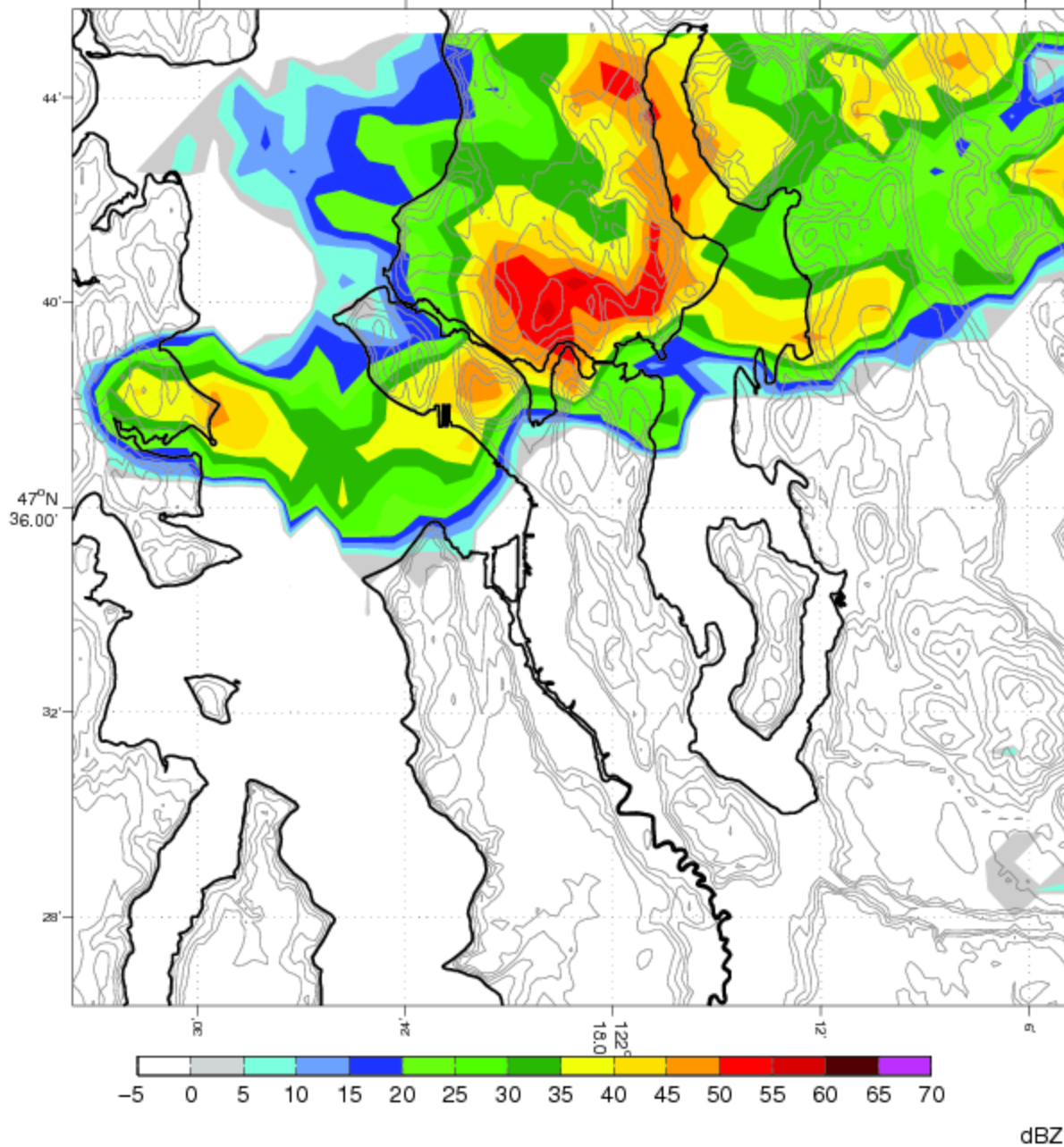




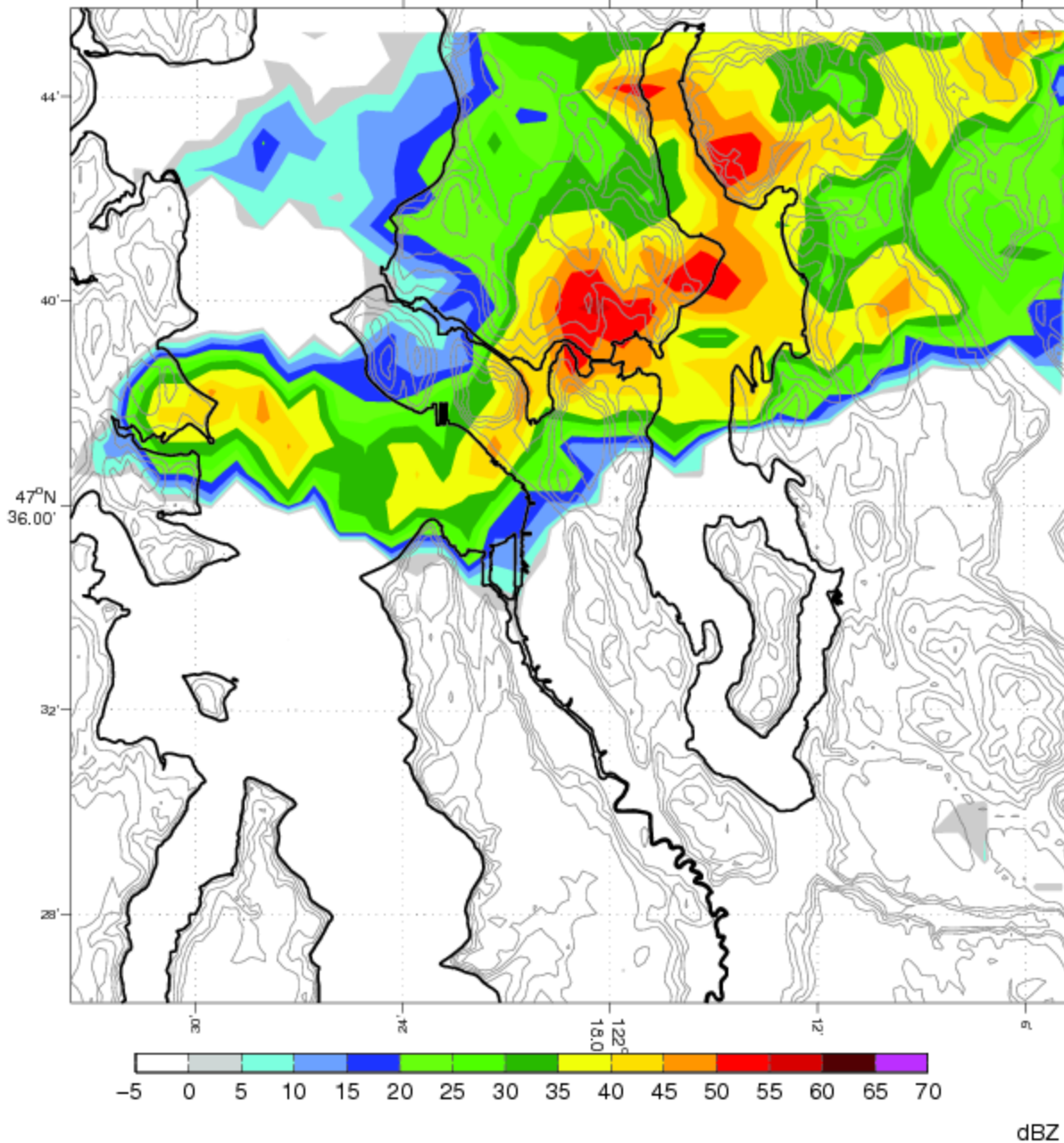
Camano Island Radar (Valid: 2014-Sep-02 6:18 PM Local)



Camano Island Radar (Valid: 2014-Sep-02 6:22 PM Local)

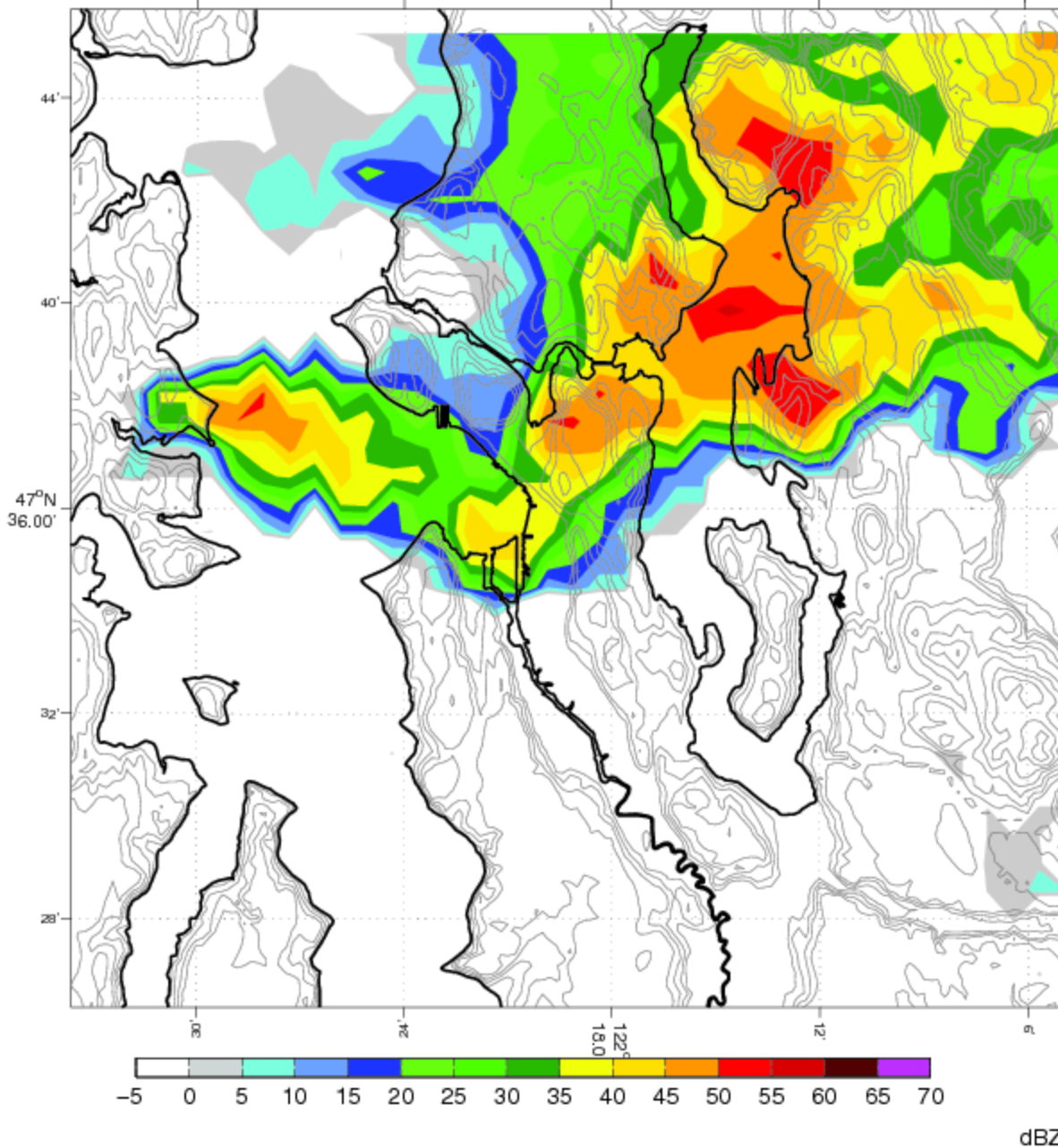


Camano Island Radar (Valid: 2014-Sep-02 6:26 PM Local)





Camano Island Radar (Valid: 2014-Sep-02 6:30 PM Local)



# Research Partnerships

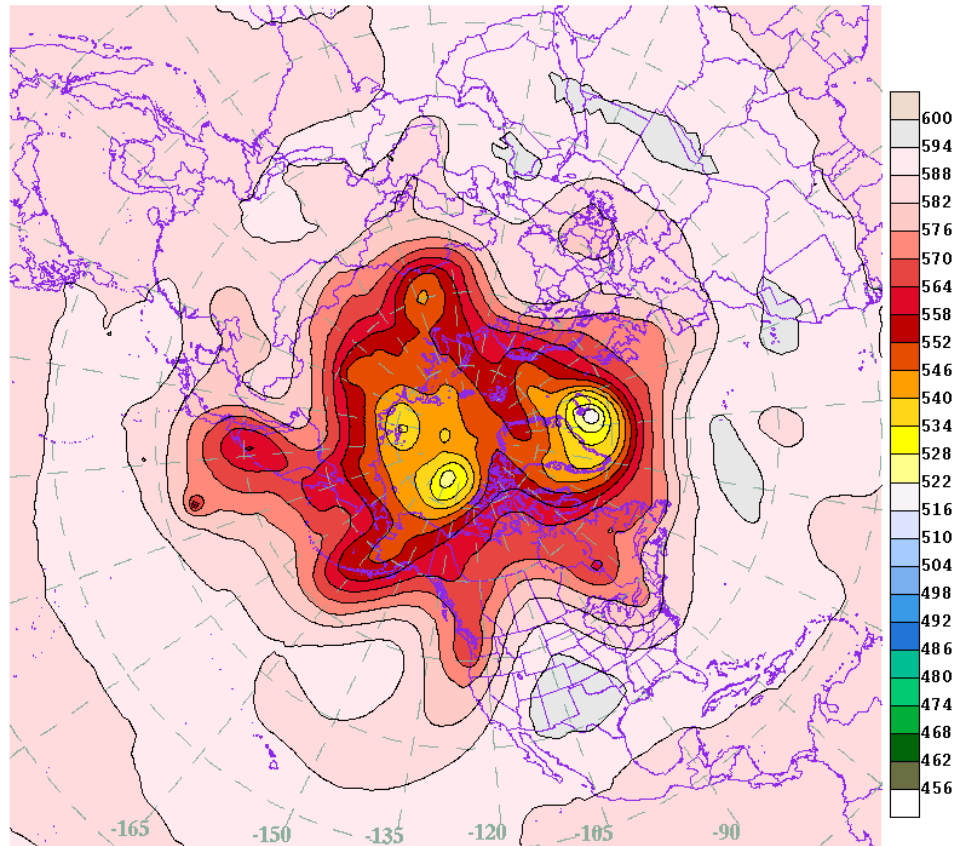
- Northwest Regional Modeling Consortium
  - University of Washington
  - Puget Sound Clean Air Agency
  - US Environmental Protection Agency
  - US Forest Service
- Office of the Washington State Climatologist
- Climate Impacts Research Consortium
  - Oregon State University
  - University of Idaho
- NOAA Center for Environmental Info.

# City-wide Collaboration

- SPU RainWatch
- SCL WindWatch
- SDOT SnowWatch
- Human Services
- Parks
- Emergency Management
- Sustainability and Environment

# Forecast

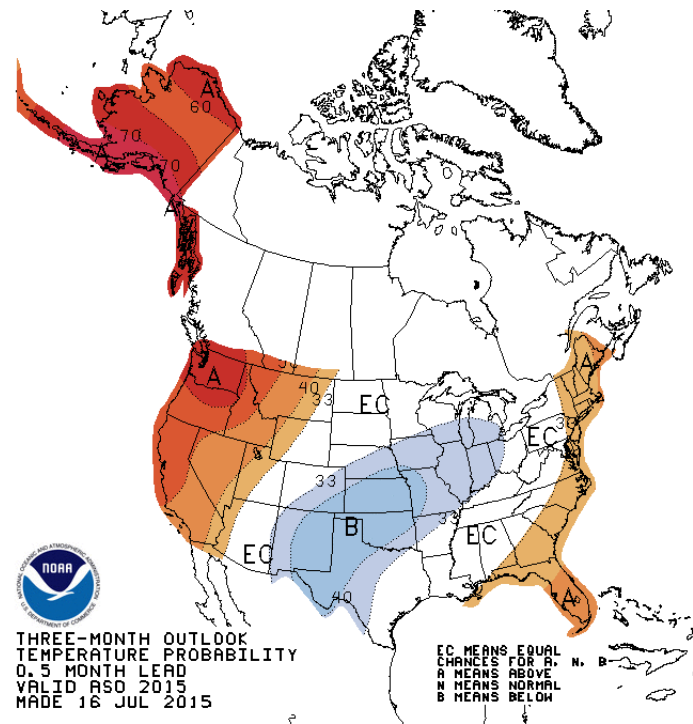
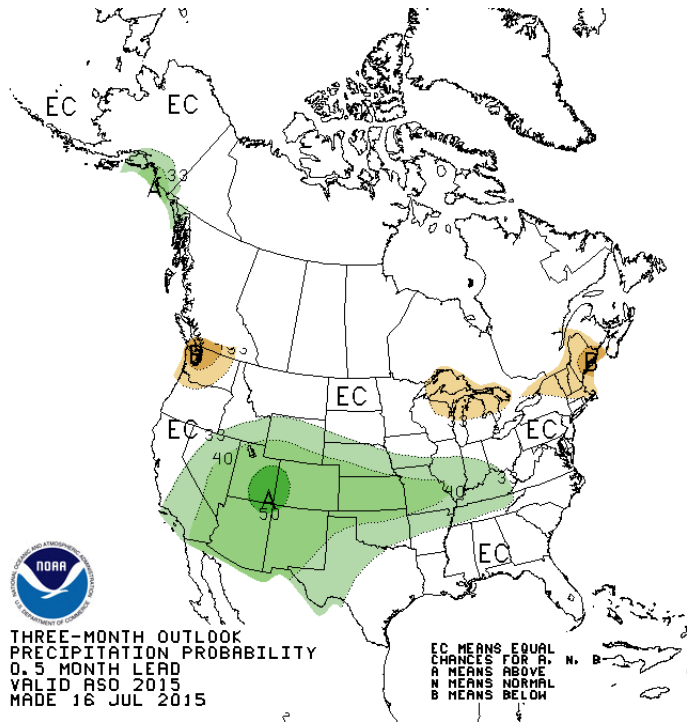
174 Hr Fcst 500 MB Heights (dekameters) valid 18Z Tue 11 Aug 2015  
(initialized 12Z Tue 04 Aug 2015)



Univ. of Washington Dept. of Atm. Sci.



# Outlook



# Weather Forecasting and Water Supply at Seattle Public Utilities

**Presentation to Seattle Public Utilities  
and Neighborhoods Committee**

**August 11, 2015**