PRISM Update

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Oregon State University

WERA-1012
19 May 2020
(not in) Estes Park, CO

USDA Risk Management Agency

Topics

- Quick intro to our group
- Volunteer precipitation networks we use
- How can we get more out of CoCoRaHS observations?

PRISM Climate Group Overview

- Applied research team since 1991, founded and directed by Dr. Christopher Daly
- Housed within the Northwest Alliance for Computational Science and Engineering, College of Engineering, Oregon State University
- Climate mapping center for the USDA; *de facto* climate mapping center for the US
- Federal sponsors cut across many departments and disciplines, including agencies within DOE, DOD, DOC, DOI, USDA, NSF, EPA

OSU
Oregon State
UNIVERSITY

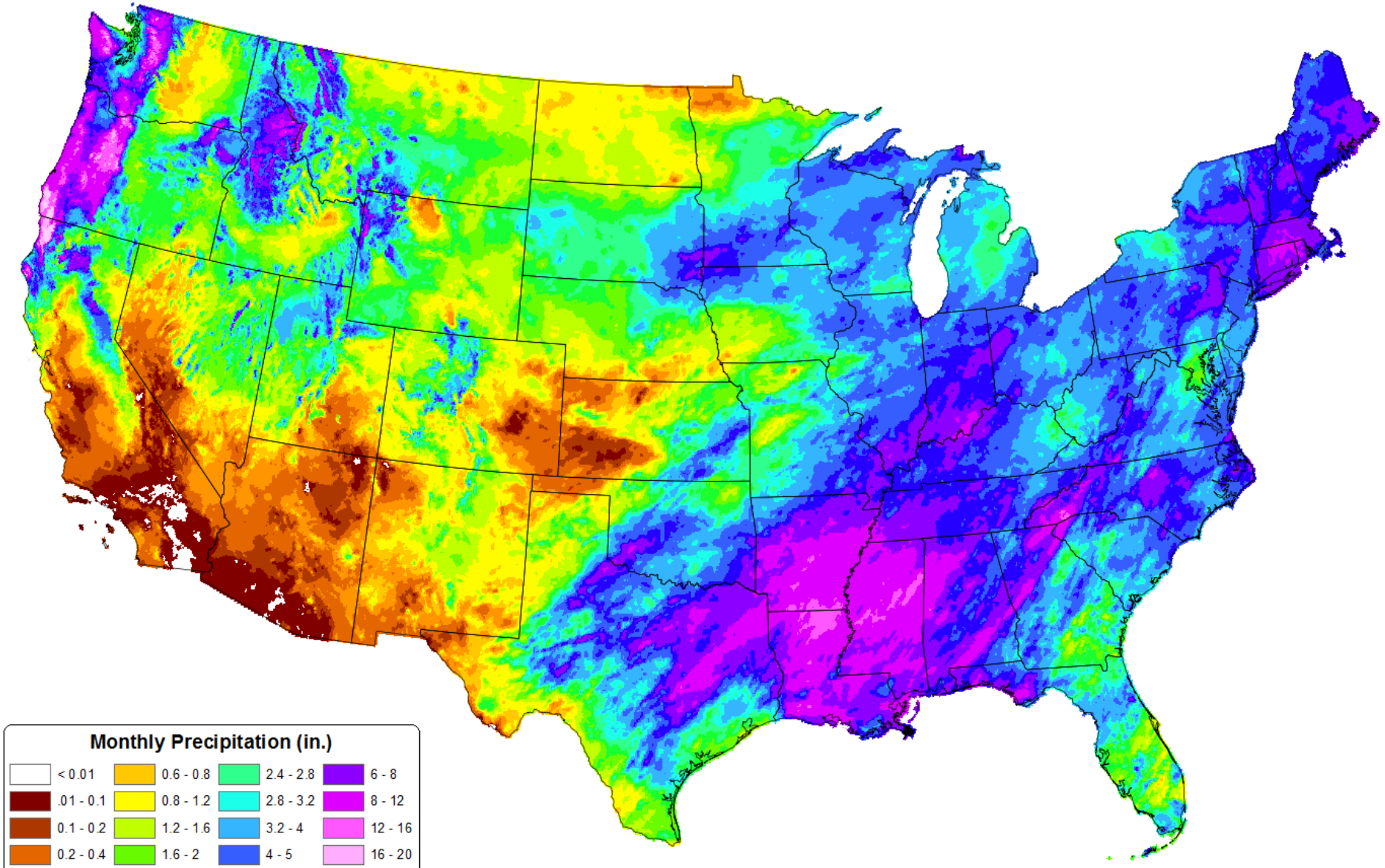
Overview of CONUS PRISM Datasets

http://prism.oregonstate.edu

Element	Normals (1981-2010)	Monthly (1895-present)	Daily (1981-present)
Precip	x	x	x
Tmax, Tmean, Tmin	x	x	x
Mean Dew Point	x	x	x
VPDmax, VPDmin	x	x	x
Solar Radiation	2020	2021	2021
Wind Speed	TBD	TBD	TBD

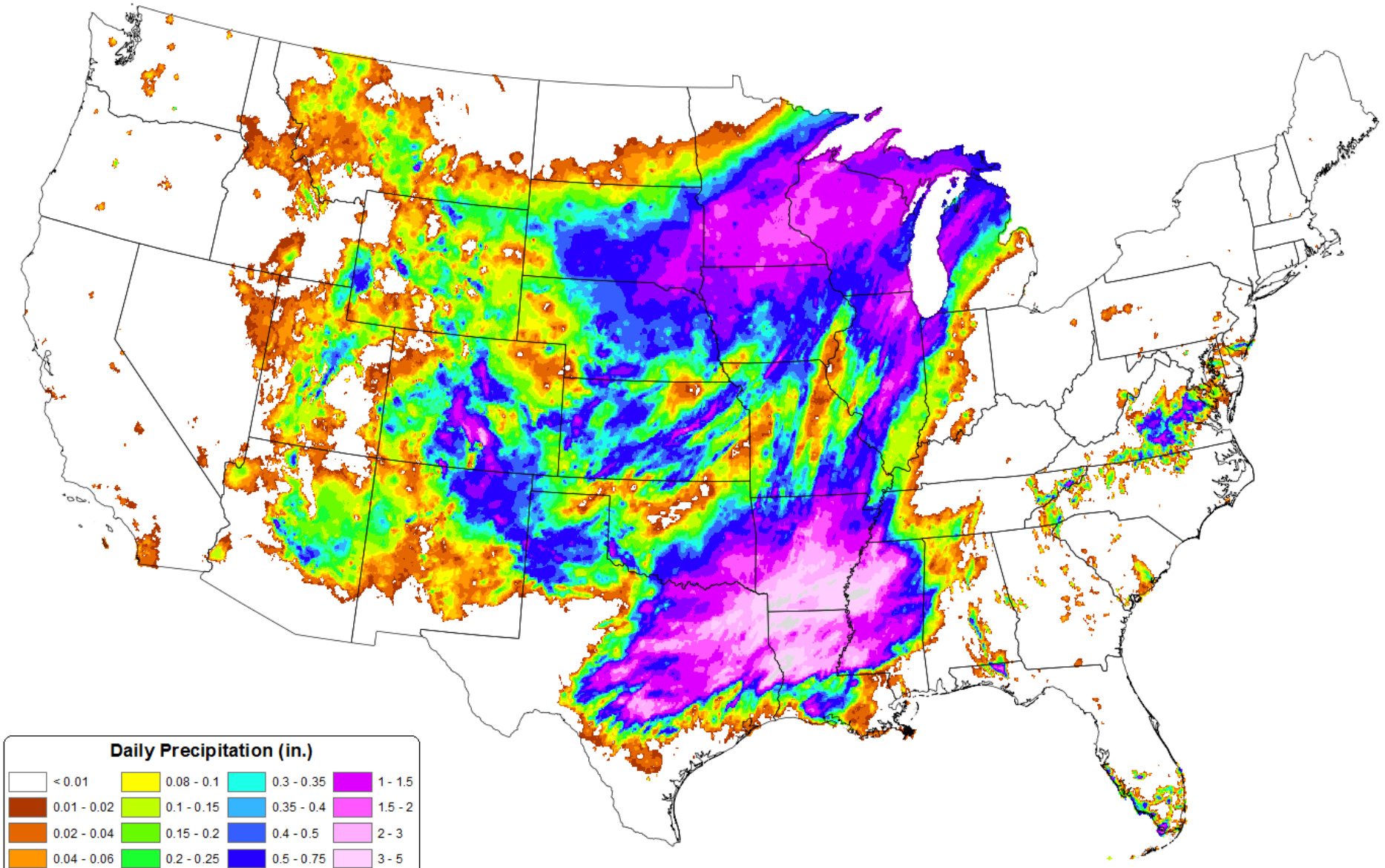
Total Precipitation: Apr 2019

Period ending 30 Apr 2019
(Map created 02 May 2019)



Total Precipitation: 09 May 2019

Period ending 7 AM EST 09 May 2019
(Map created 10 May 2019)



North Dakota State Water Commission
Volunteer Network

1 June 2017

high density, limited extent

MN Gage Volunteer Network

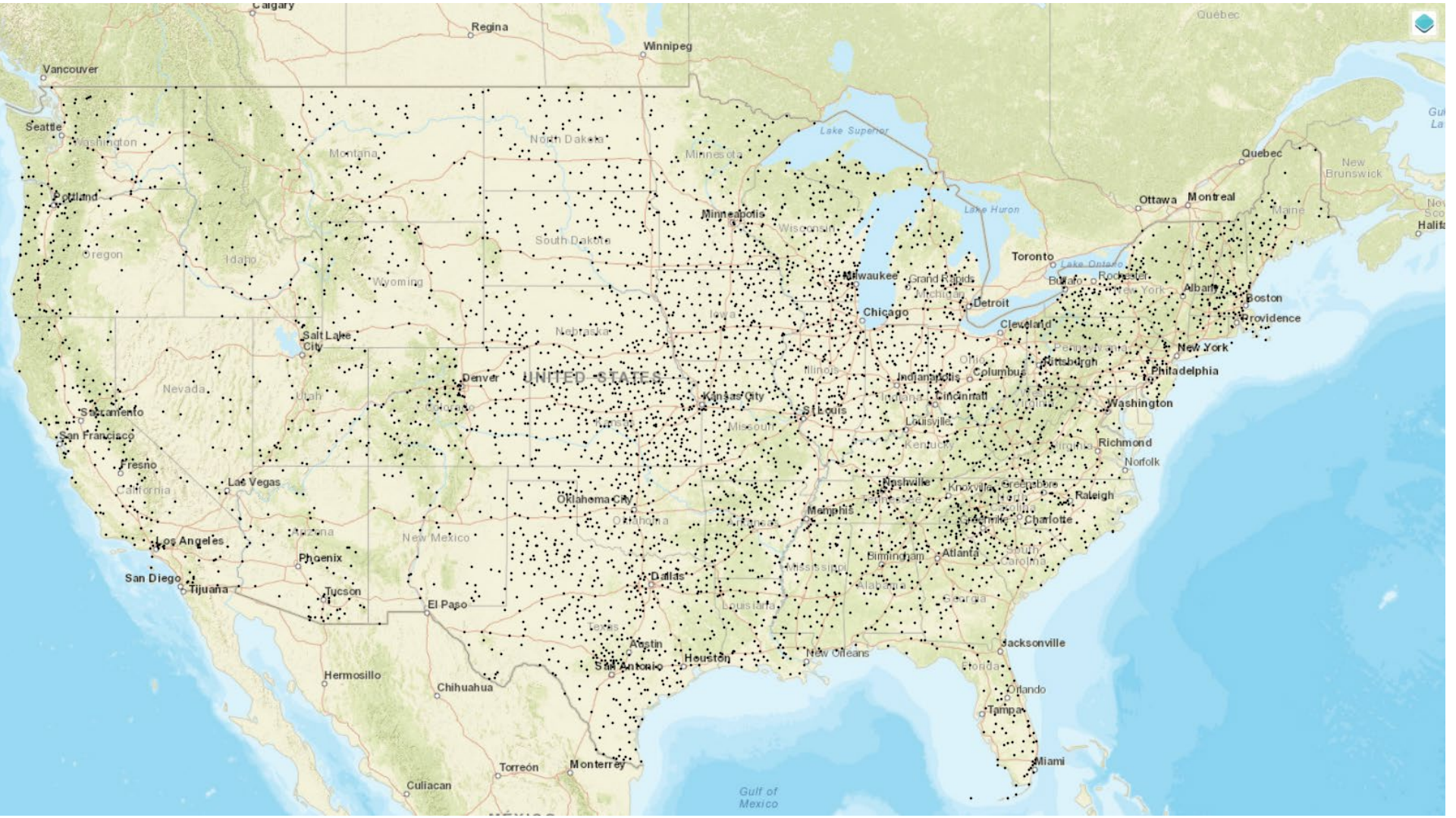
1 June 2017

high density, limited extent

COOP Volunteer Network

1 June 2017

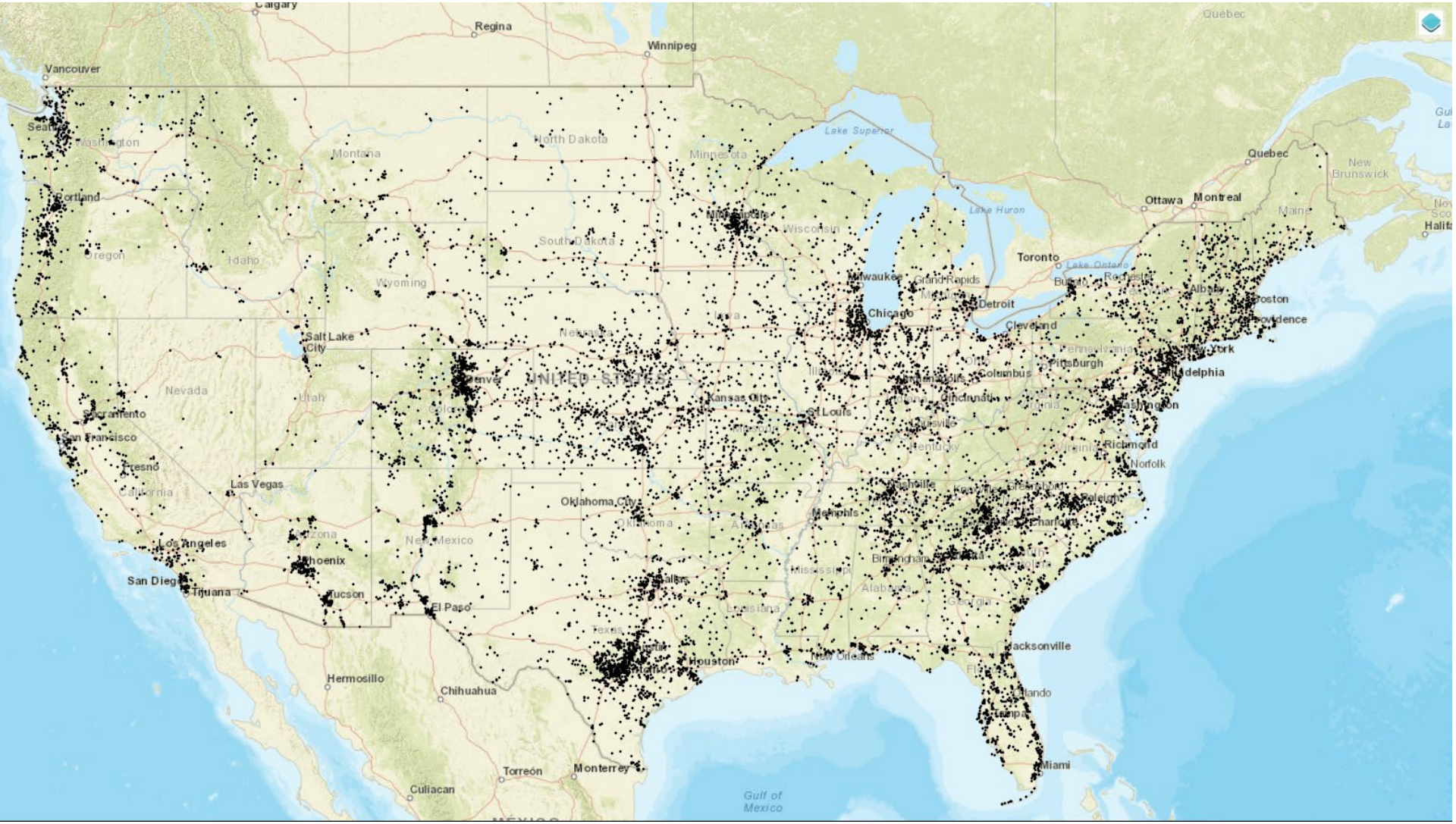
moderate density, wide extent



CoCoRaHS Volunteer Network

1 June 2017

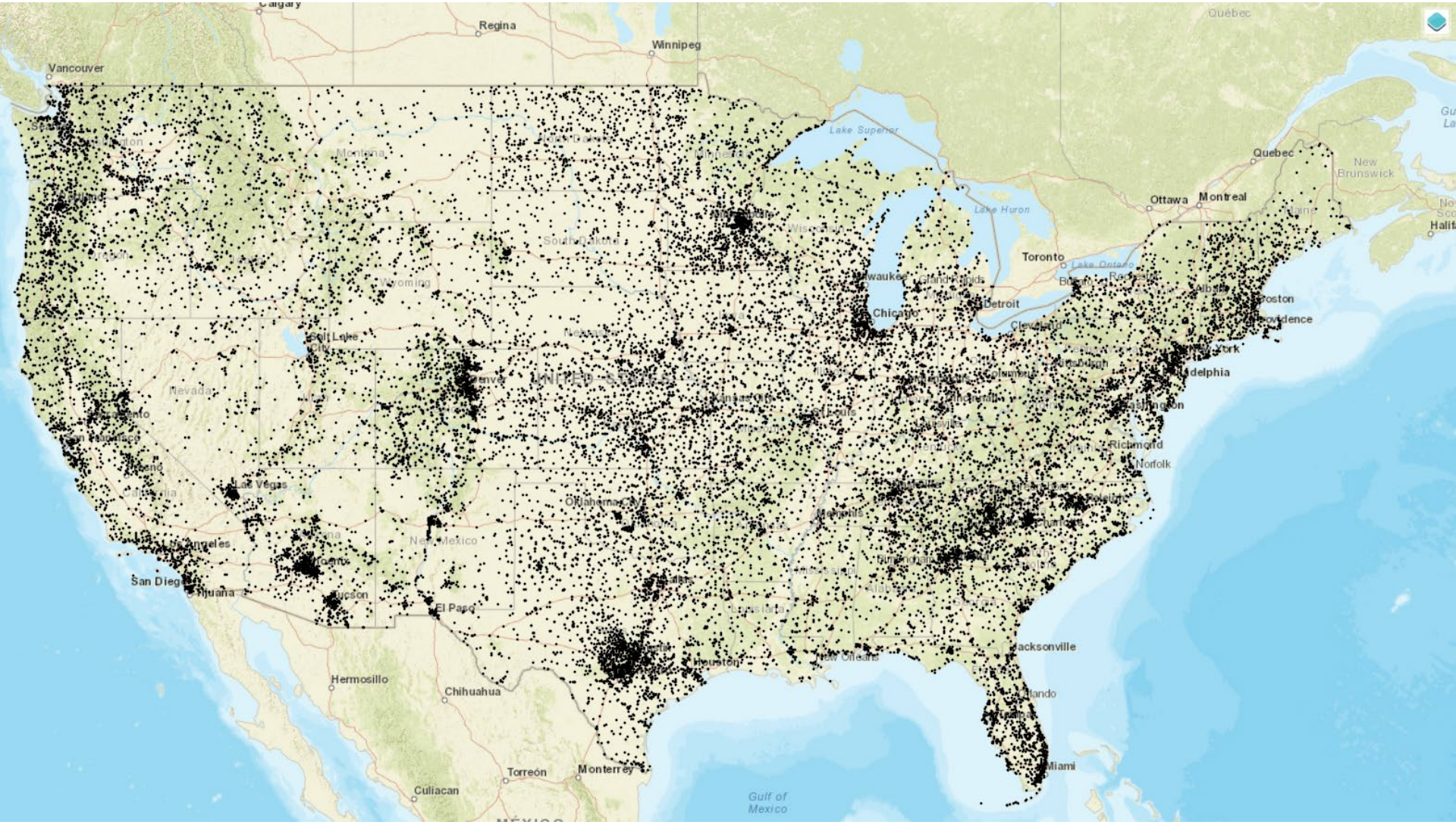
very high density (in clusters), wide extent



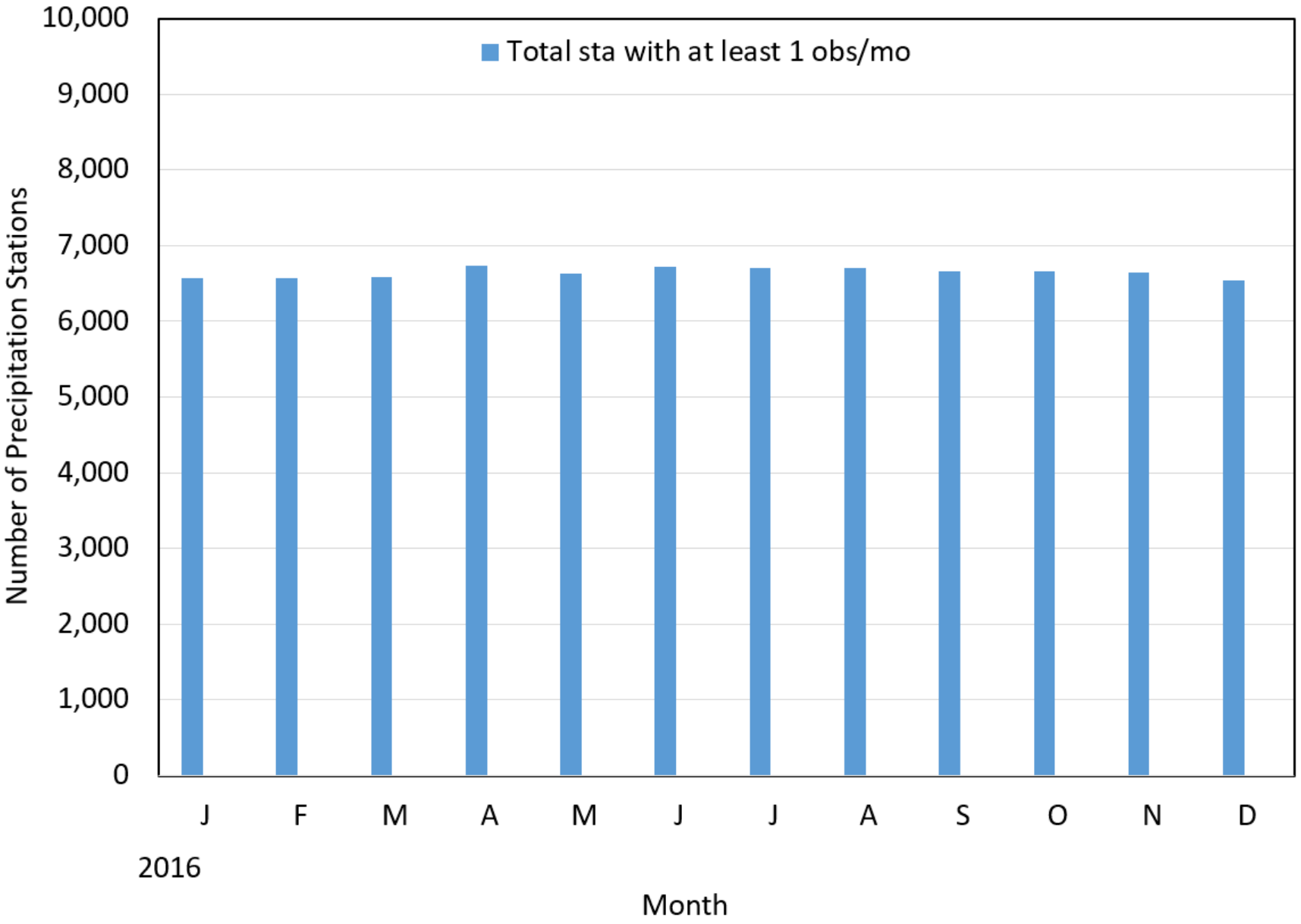
All PRISM Networks

1 June 2017

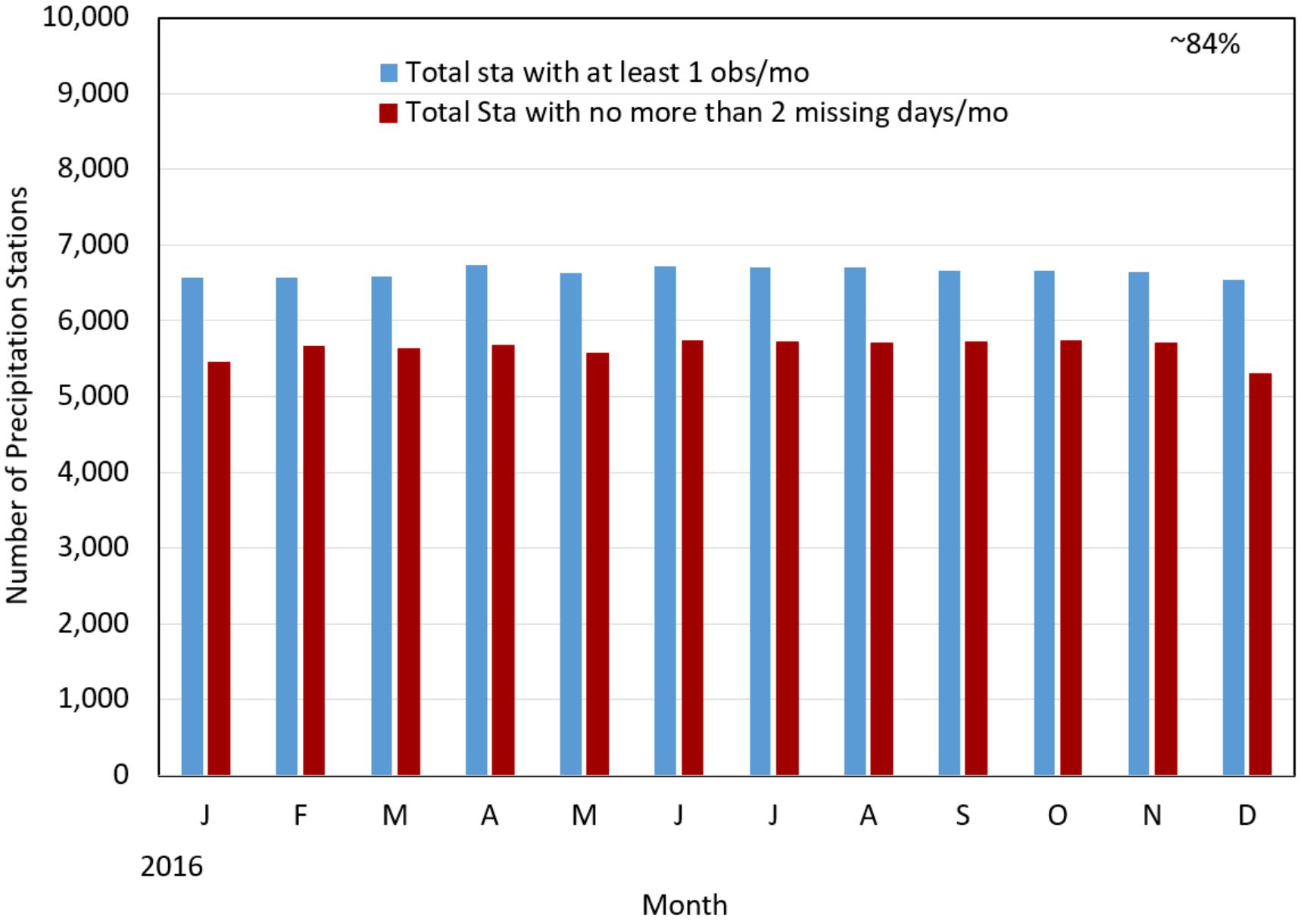
(~17,600 stations)



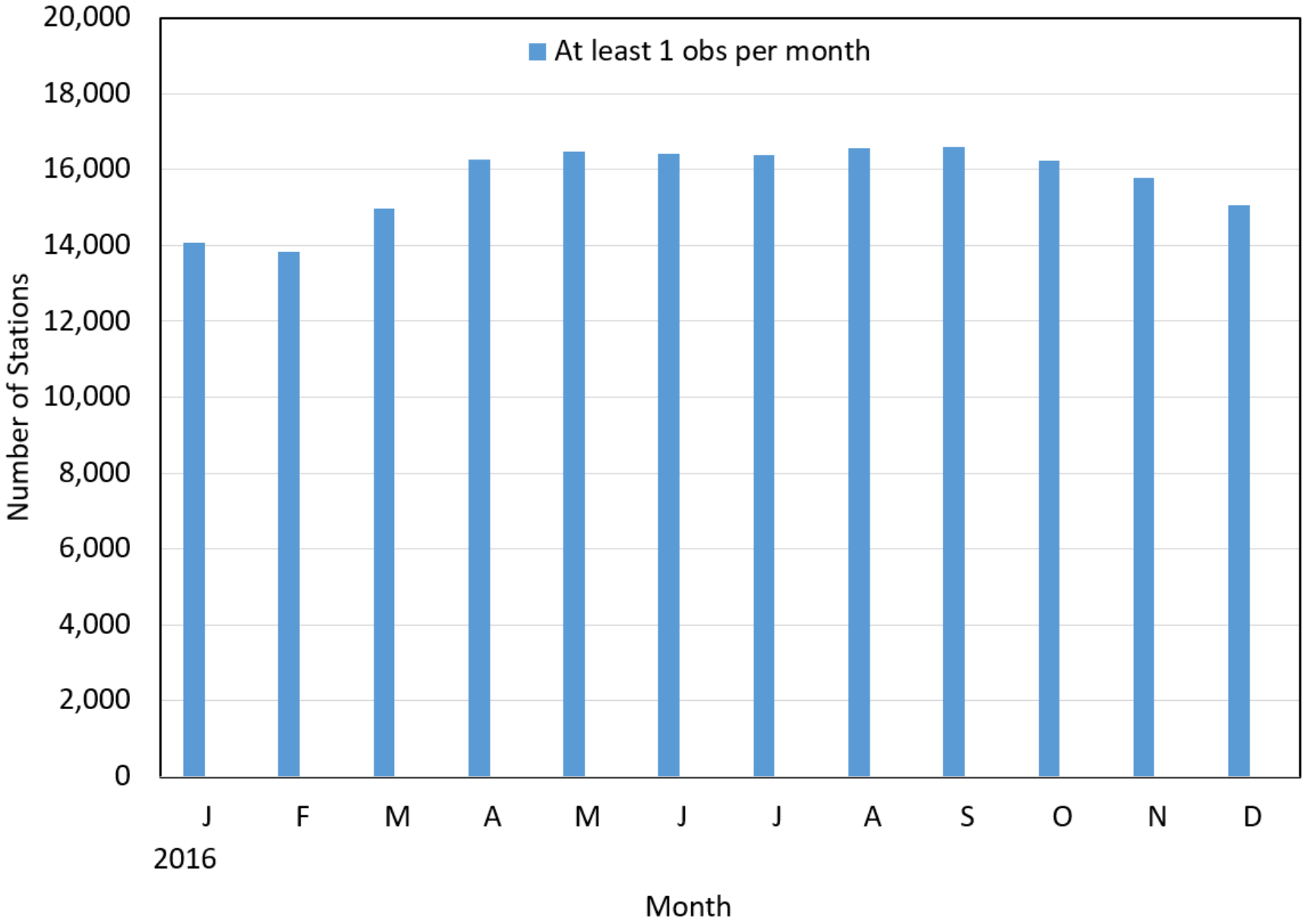
COOP Precipitation Data Availability, 2016



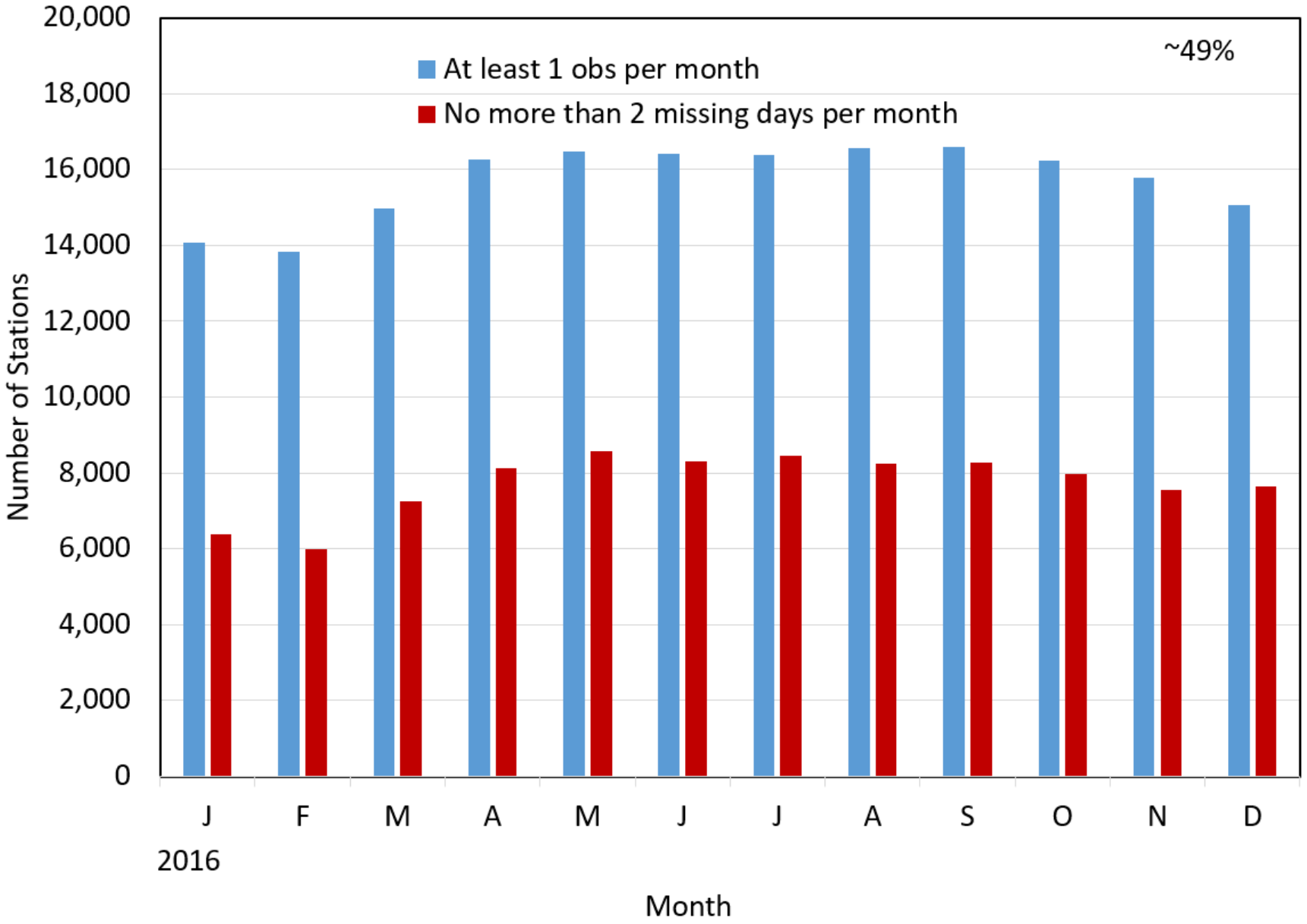
COOP Precipitation Data Completeness, 2016 – 84%



CoCoRaHS Precipitation Data Availability, 2016



CoCoRaHS Precipitation Data Completeness, 2016 – 49%



We Don't Like Losing Half of our CoCoRaHS Friends!

We could relax the data completeness criterion for stations that report on fewer days than we would like…

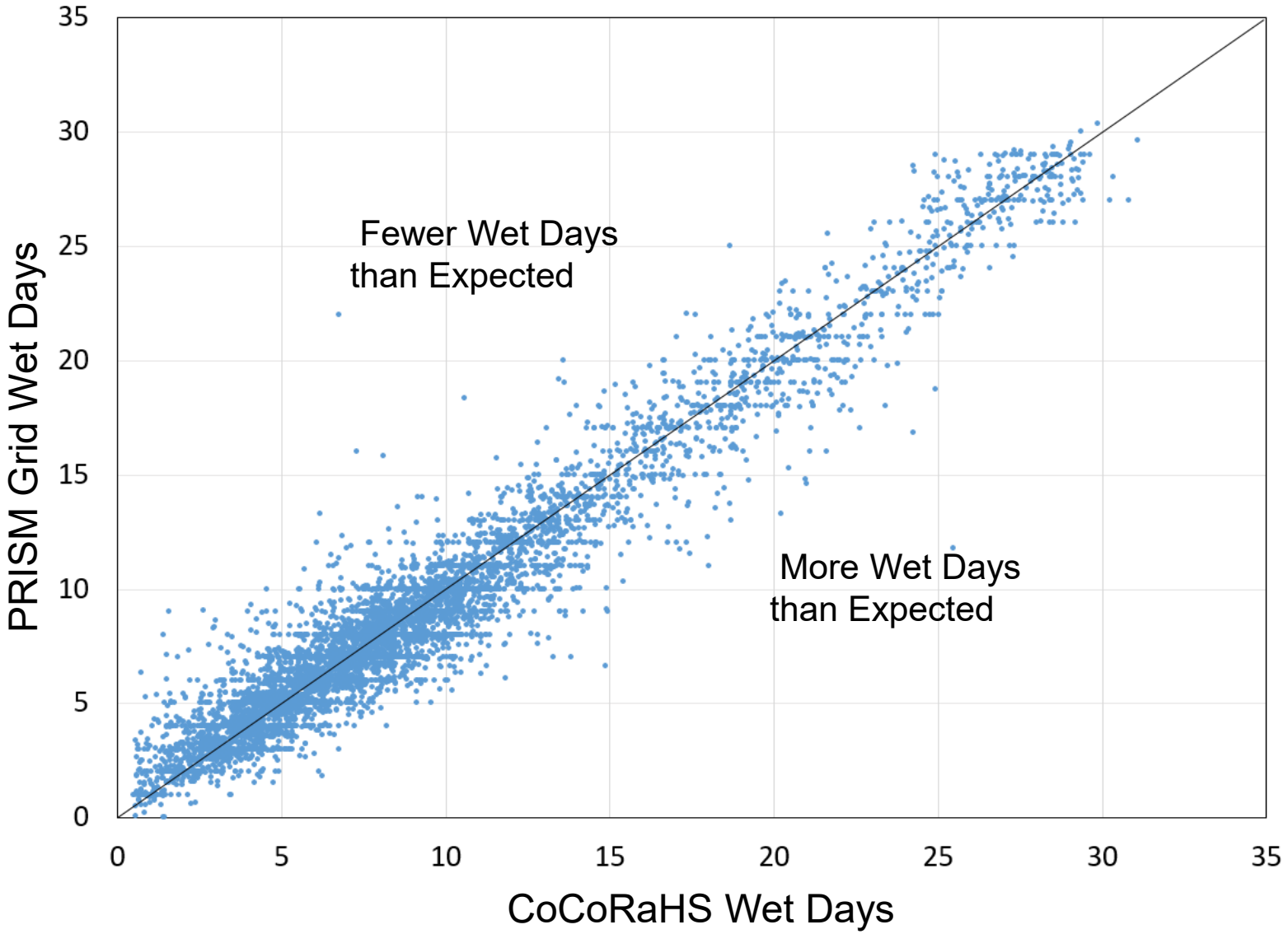
as long as they cover the wet days in that month

Truth or Myth?

CoCoRaHS observers may not observe every day, but they DO report when it rains

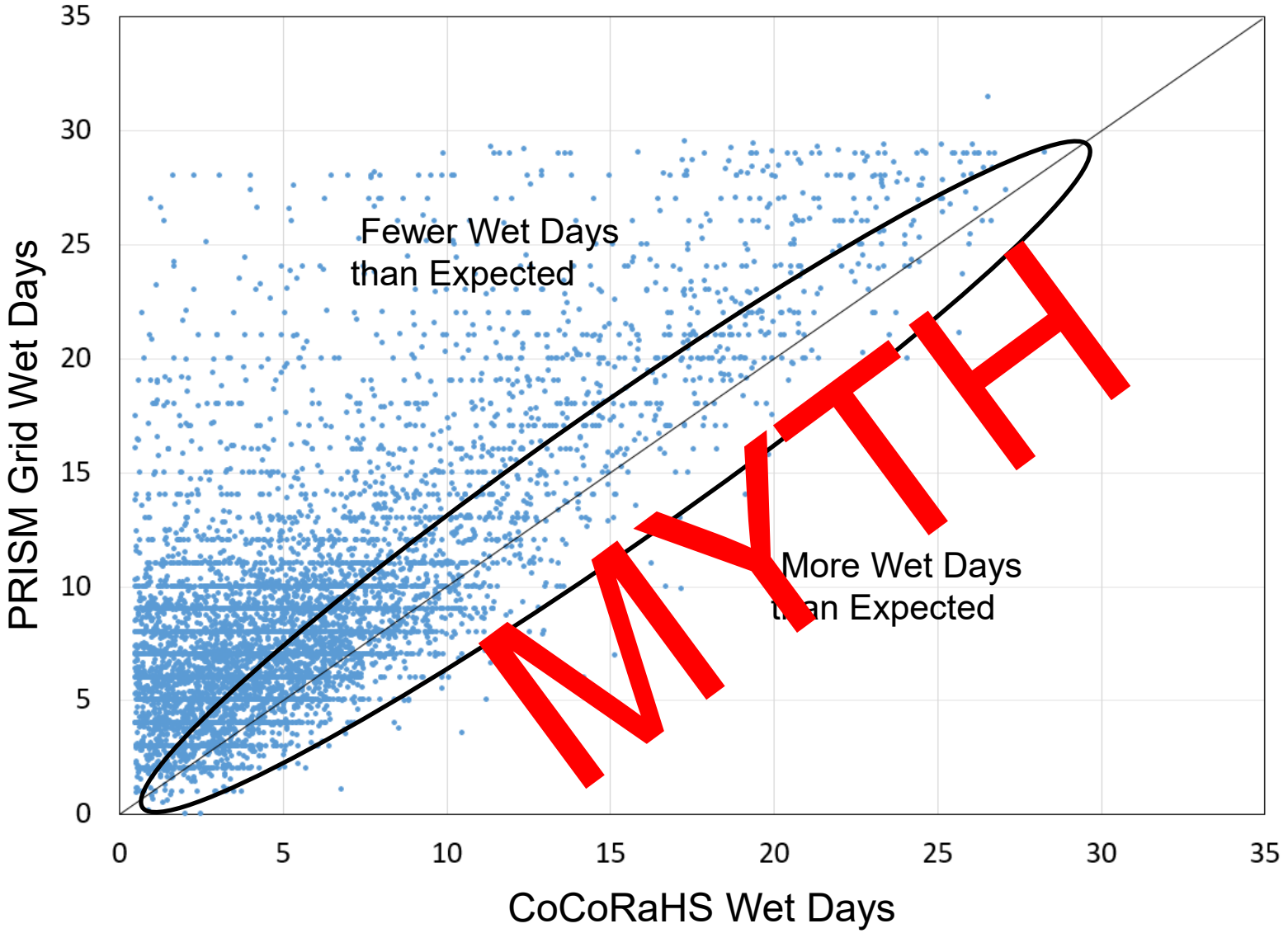
January 2016 Grid Vs. CoCoRaHS Number of Wet Days

Accepted CoCoRaHS (≤ 2 missing days/month)



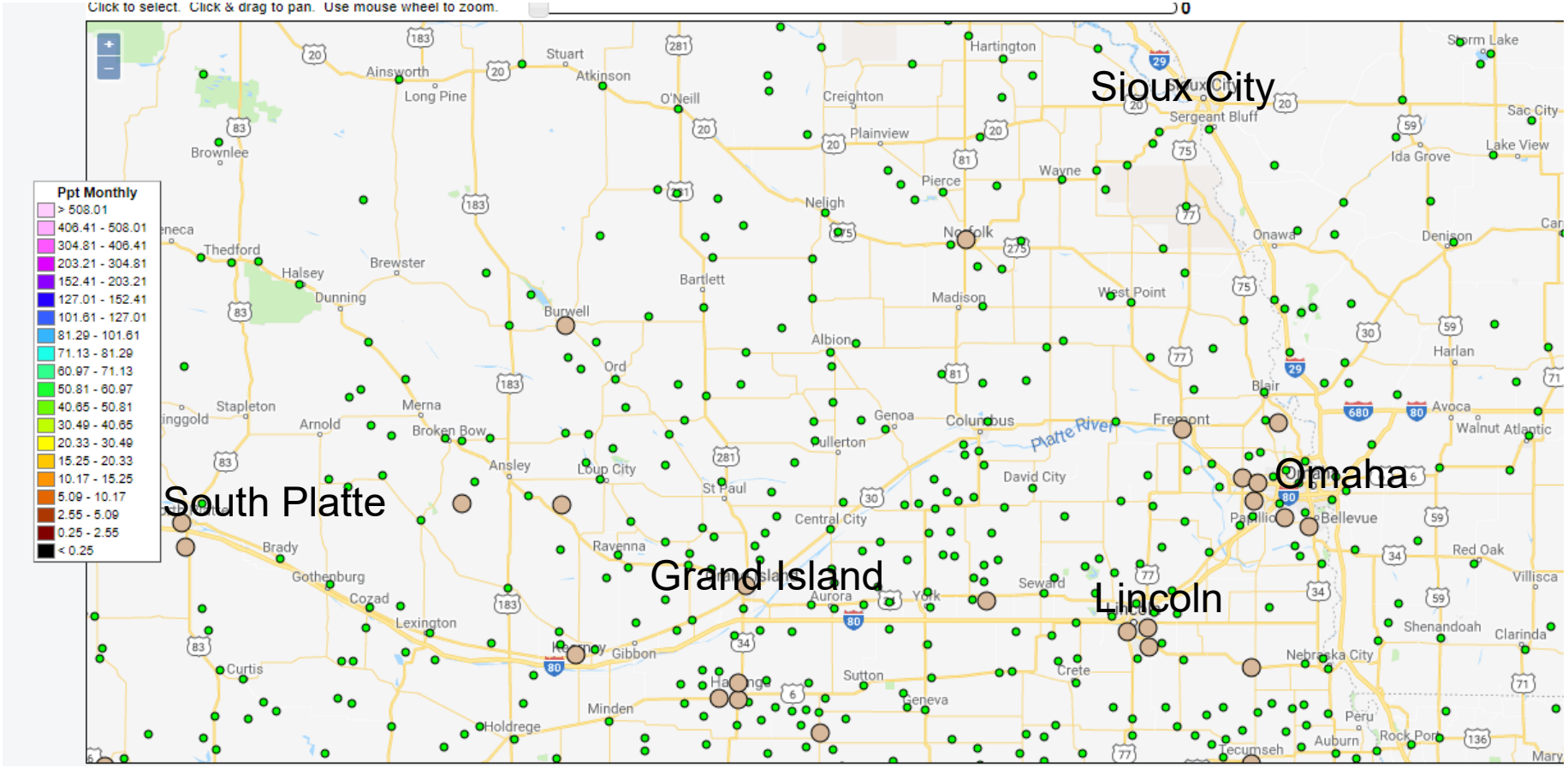
January 2016 Grid Vs. CoCoRaHS Number of Wet Days

Rejected CoCoRaHS (> 2 missing days/month)



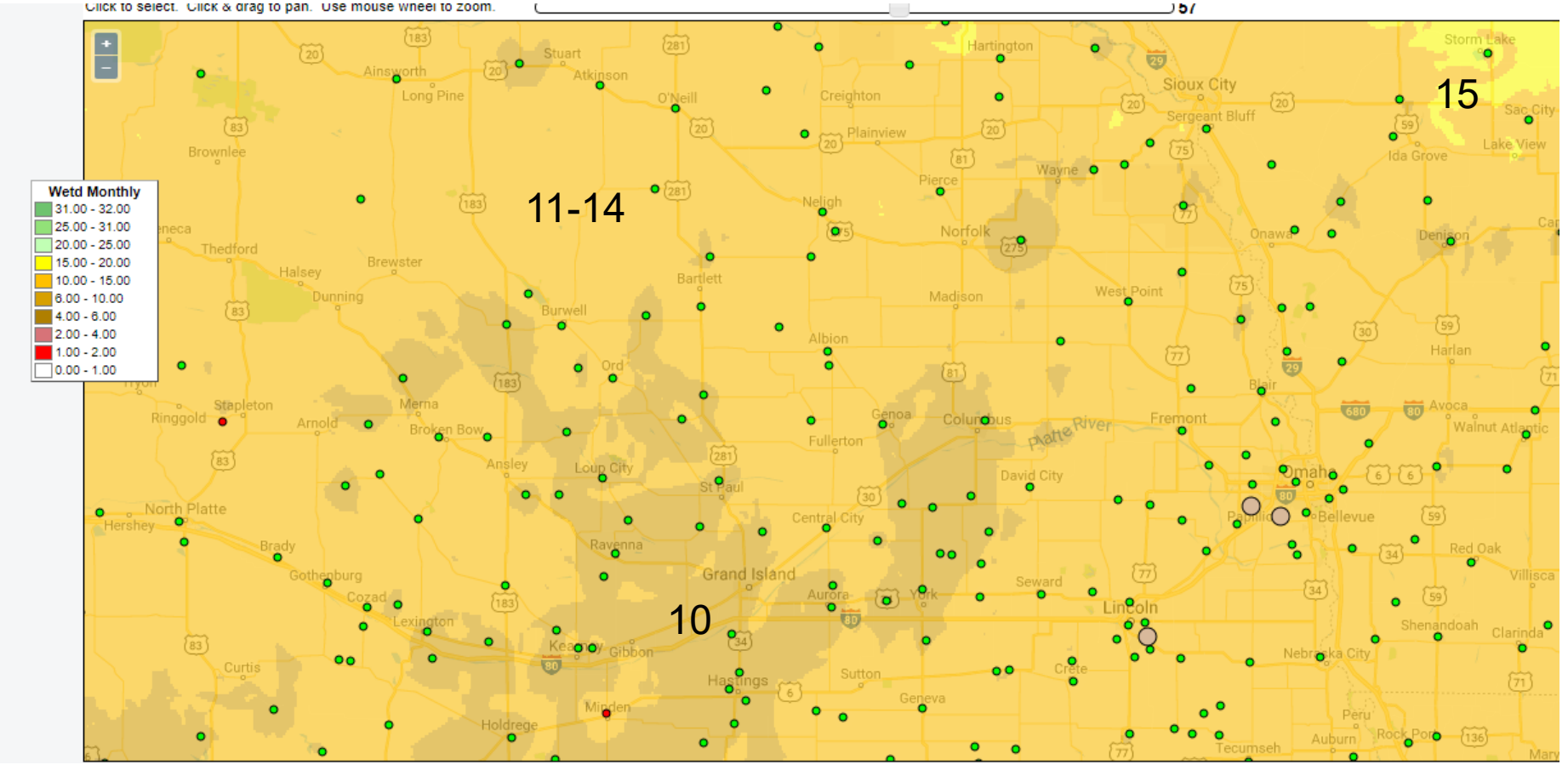
Nebraska Study Area, April 2016

<3 Missing Days All networks Shown, Spatial QC ON



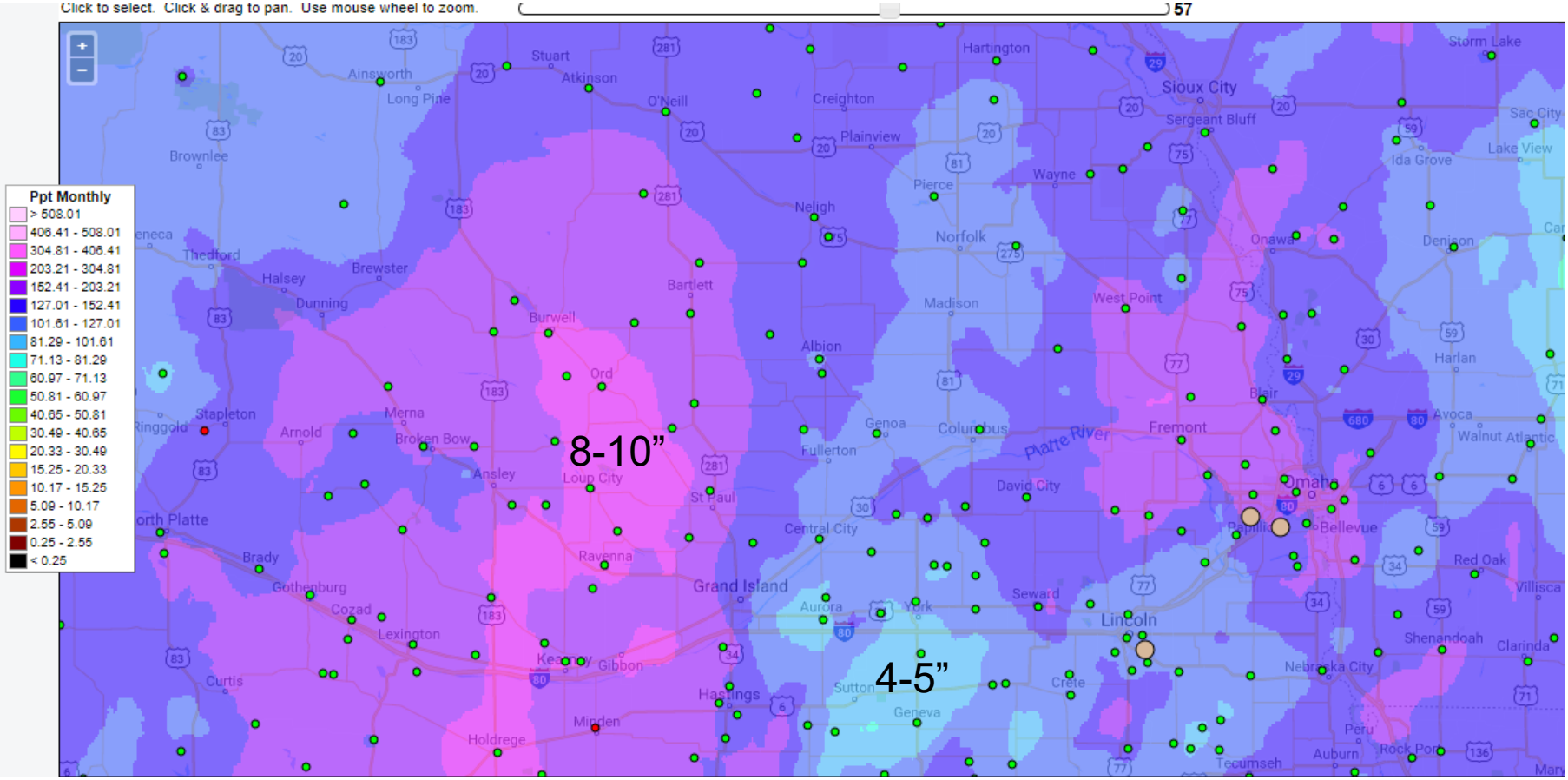
April 2016 Number of Wet Days

<3 Missing Days All networks Shown, Spatial QC ON



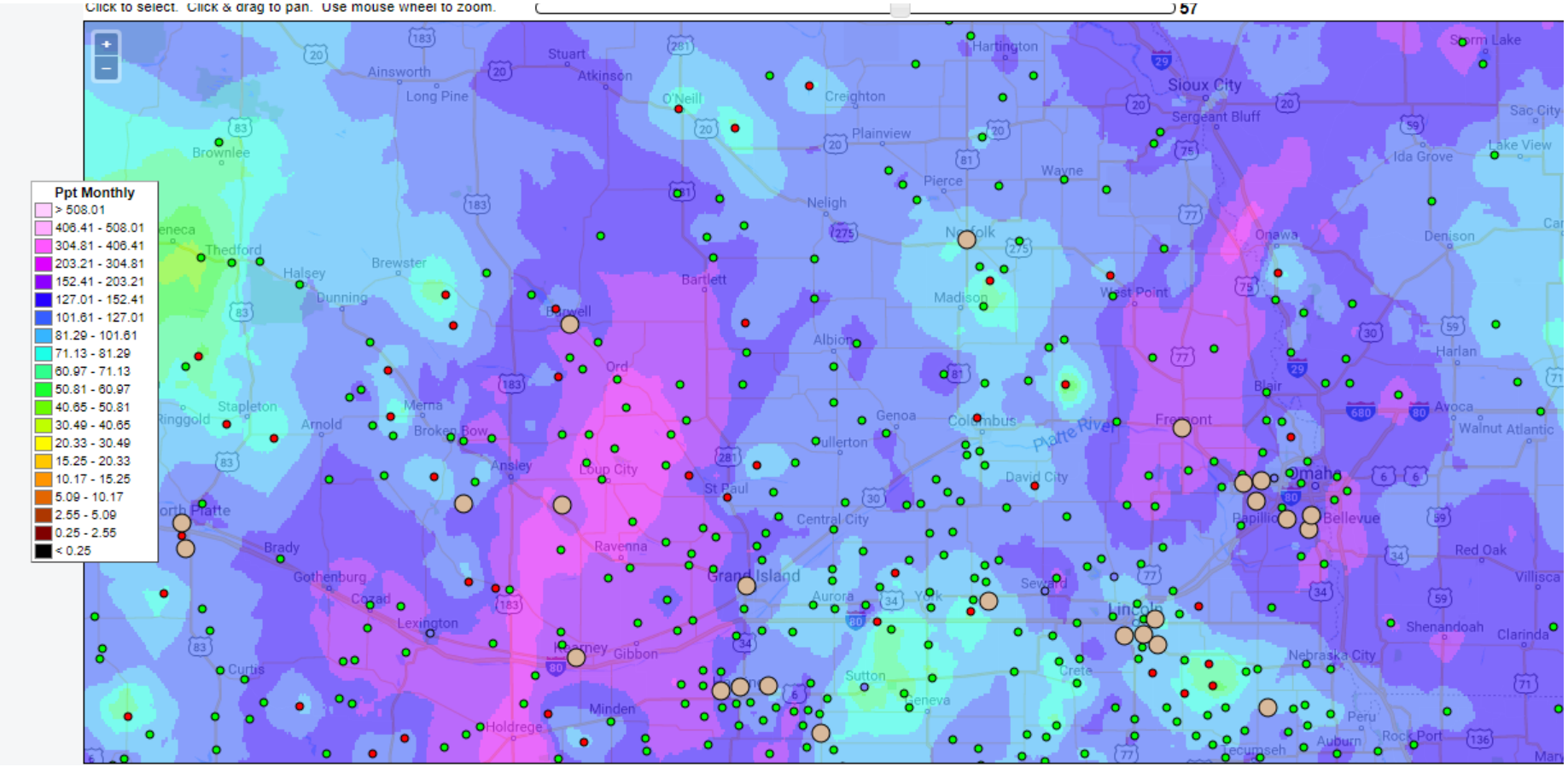
April 2016 Total Precipitation

<3 Missing Days All networks Shown, Spatial QC ON



April 2016 Total Precipitation

All CoCoRaHs w/>=1 Obs, CoCoRaHS Shown, Spatial QC OFF



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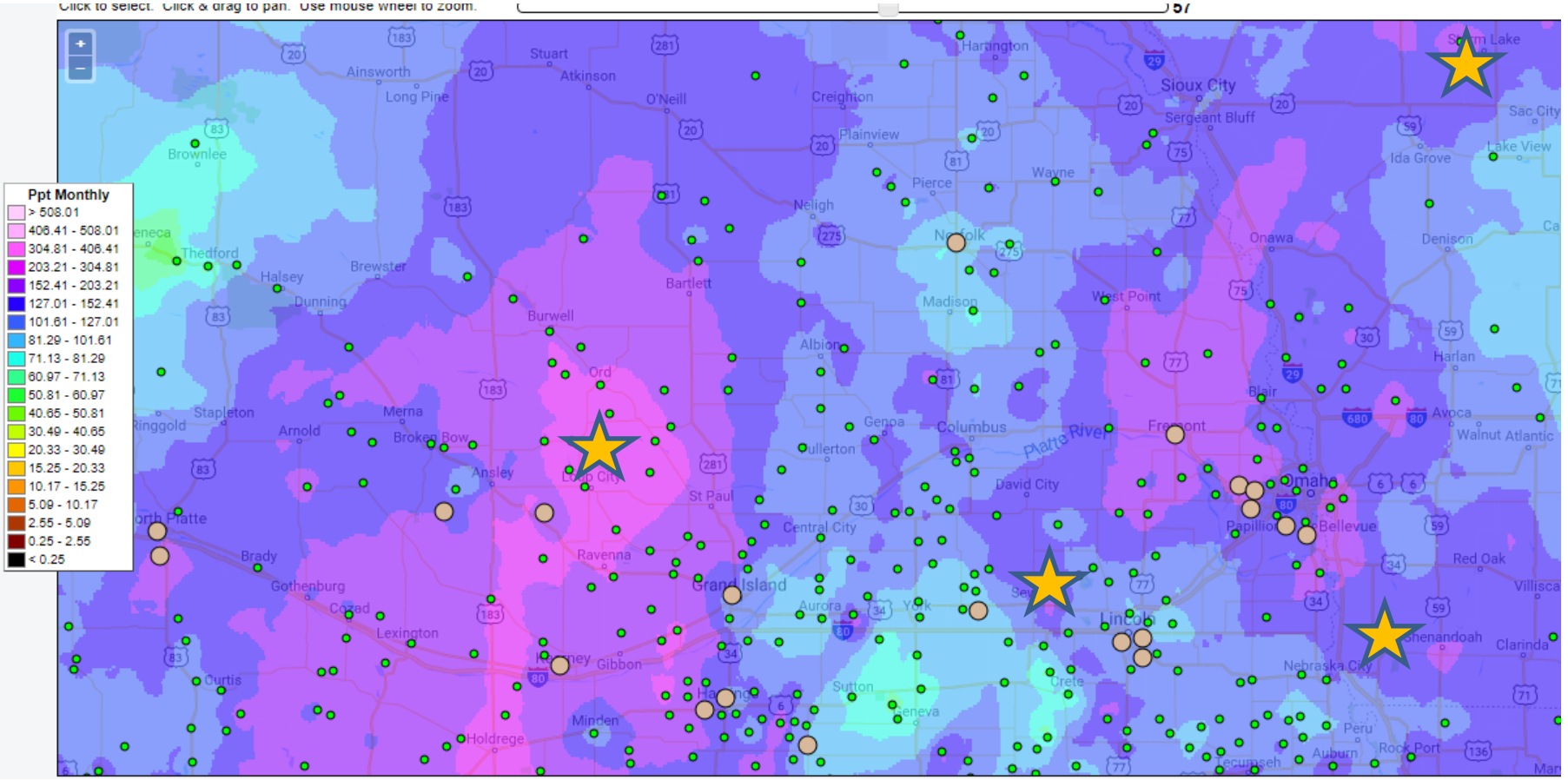

The Good News

- There are SOME stations that don't make the completeness cutoff but DO observe on most expected wet days and seem to have reasonable monthly totals.

BUT…
How Far Can We Trust These Intermittent Observers?

- Every time a station misses a wet day, the gauge may not be dumped out
- There may be less attention to detail and accuracy

Question for the group:

What is your experience with daily data quality from intermittent observers compared to consistent observers?