Mountain Rain or Snow: Citizen science

Understanding winter weather
with Lynker Tech, DRI, and UNR

NASA Partner

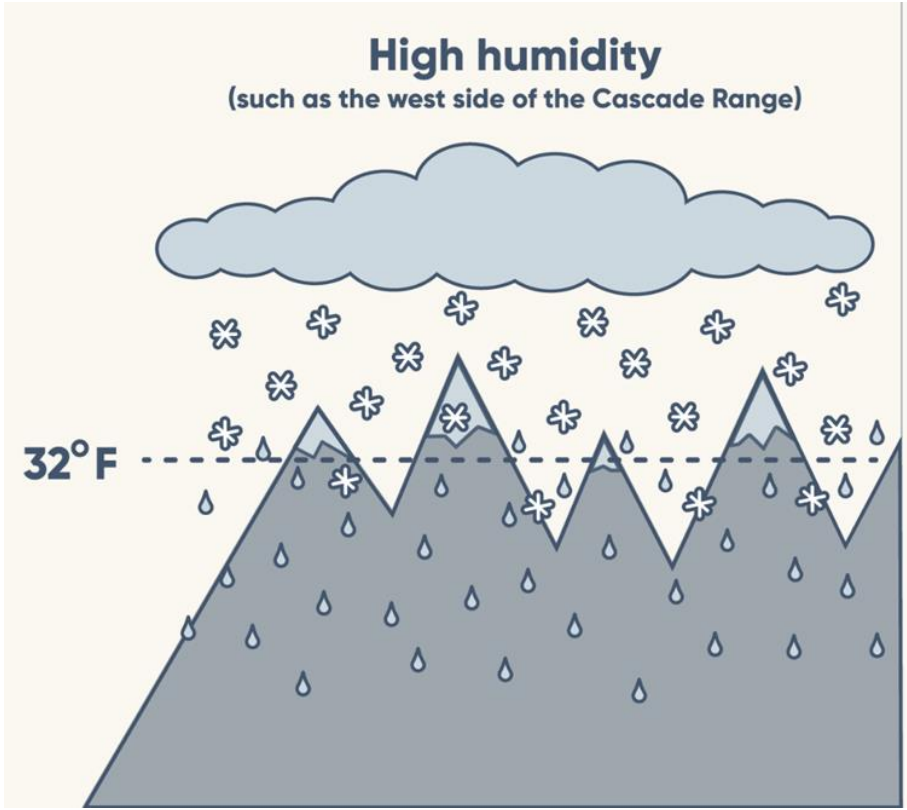
Mountain Rain or Snow

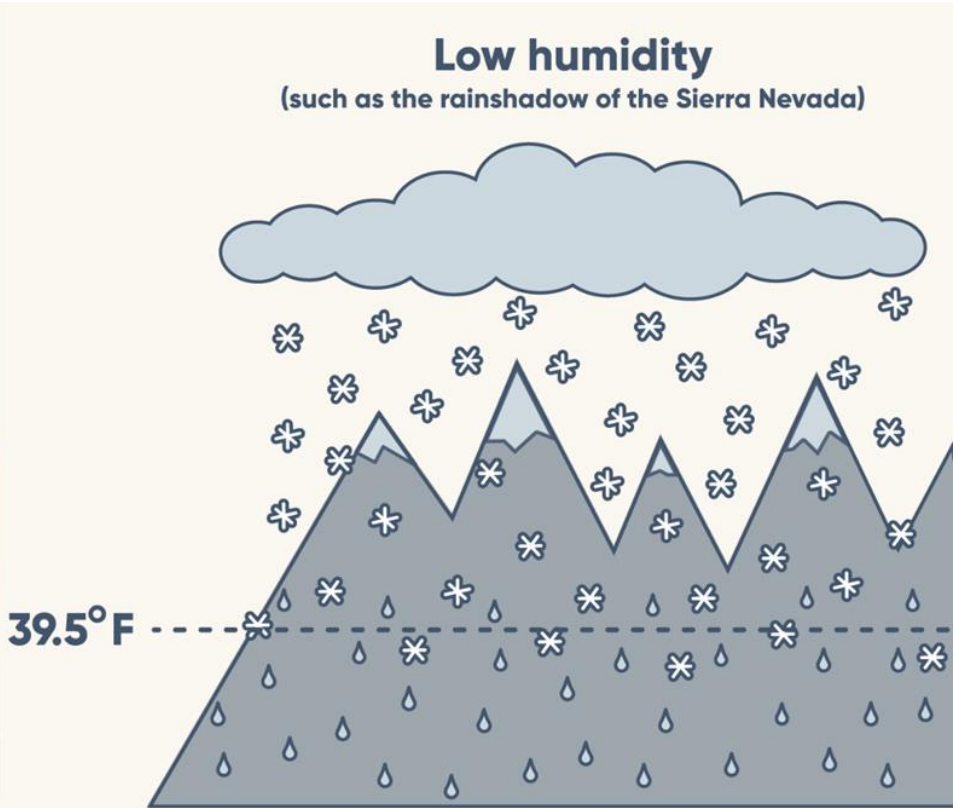
Have you ever noticed snow falling when the air temperature is above freezing?

It’s not just interesting - it poses a real challenge for hydrologists and water managers to estimate how much precipitation falls as snow in winter, and makes life difficult for weather forecasters!

Photo: Keith Jennings

Mountain Rain or Snow





Graphic: Lindsey Funseth/DRI

Mountain Rain or Snow

The rain-snow air temperature threshold is primarily a function of humidity and elevation.

How can we improve estimates of winter precipitation phase?

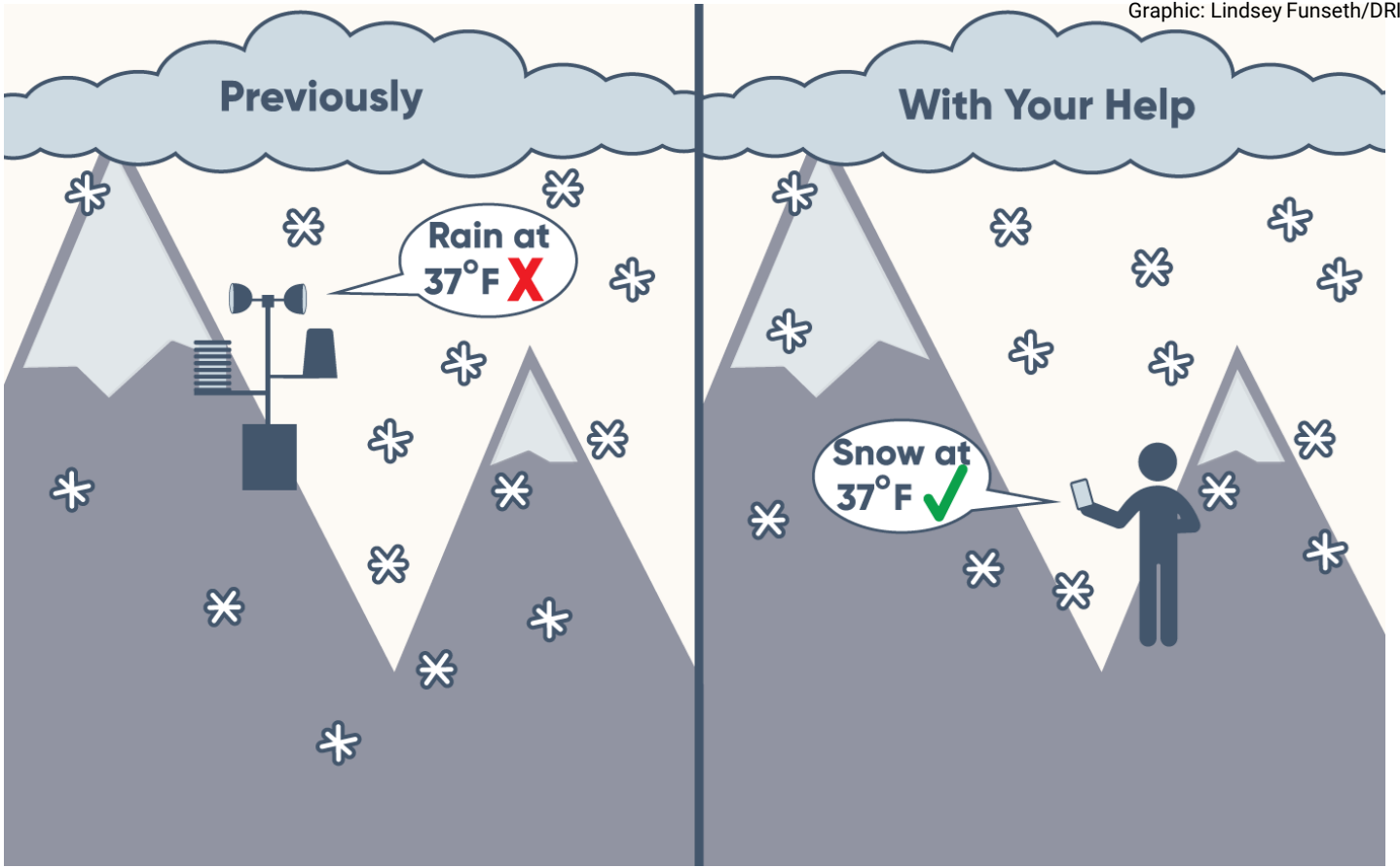
By keeping our eyes on the sky.

Wait… what is precipitation phase? Precip can fall as a liquid (rain, mixed) or as a solid (snow).

Photo: Gareth Blakemore

This brings us to the goal of Mountain Rain or Snow: ground-based observations of precipitation phase.

Graphic: Lindsey Funseth/DRI



Mountain Rain or Snow

Together, we can help reduce inaccuracies in estimating precipitation. We will determine the rain-snow air temperature threshold which is used by hydrologic models.

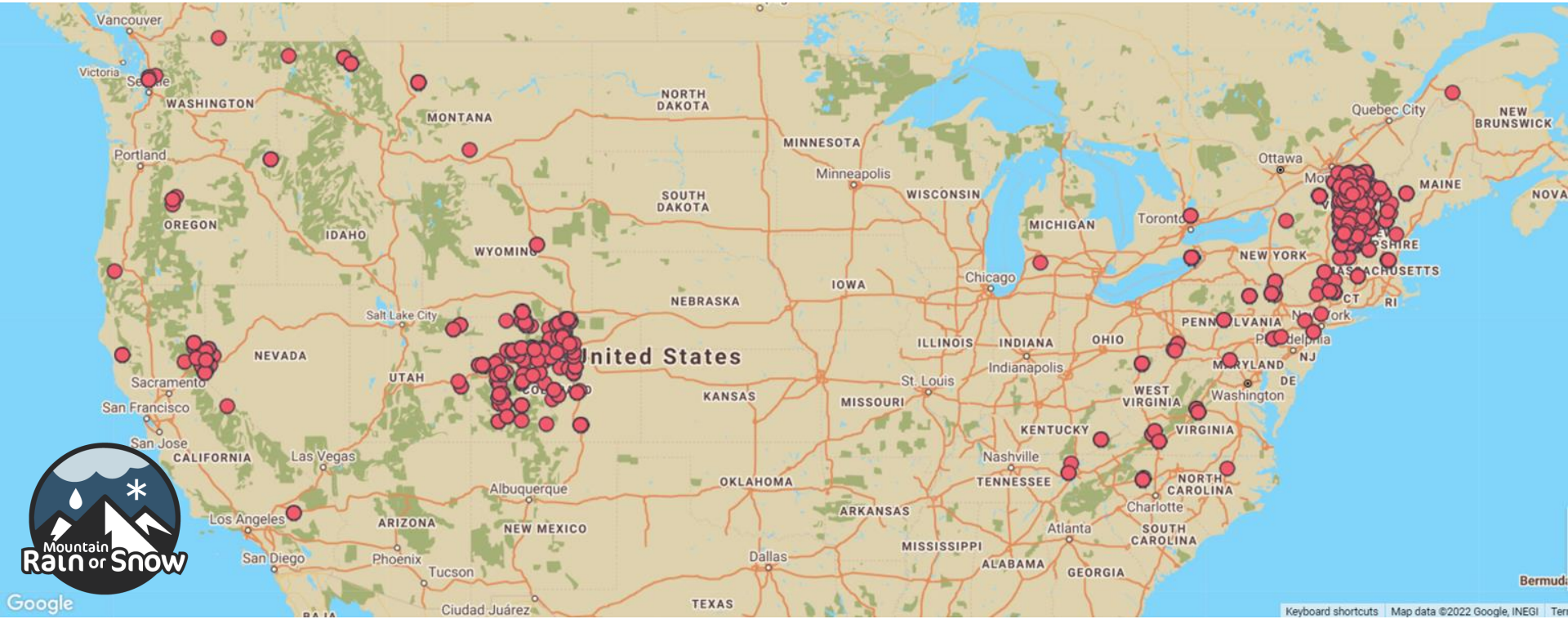
What is the goal of Mountain Rain or Snow?

Improve the prediction of snow accumulation and rainfall with real-time observations of winter weather.

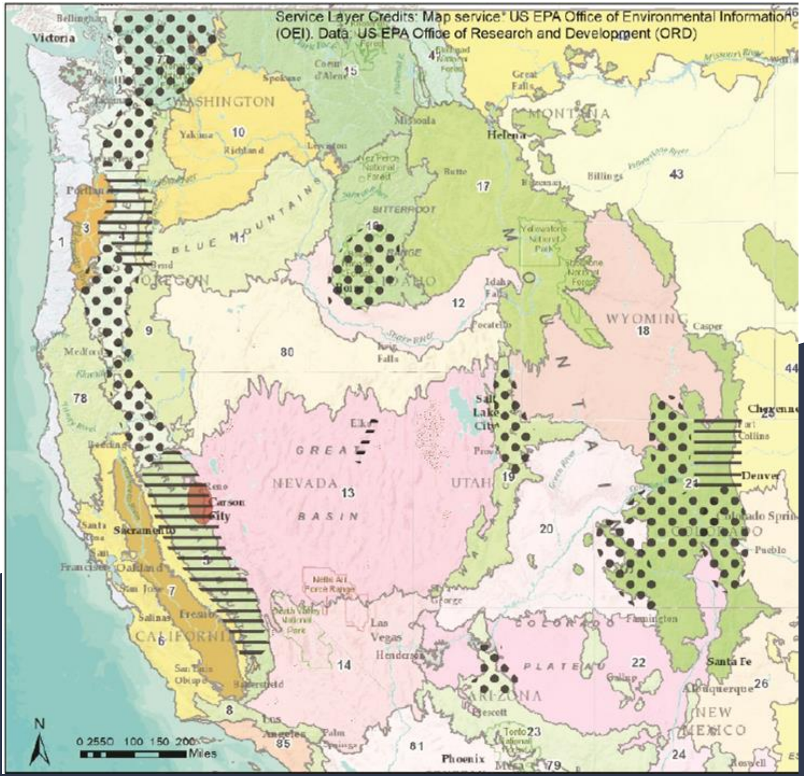
Scientists use temperature thresholds to determine where and when a storm will transition from rain to snow, but if that threshold is off, it can affect our predictions of flooding, snow accumulation, and avalanche hazard.

Photo: Meghan Collins/DRI

Participants join us from all over the continent.



Our goals: More mountains!



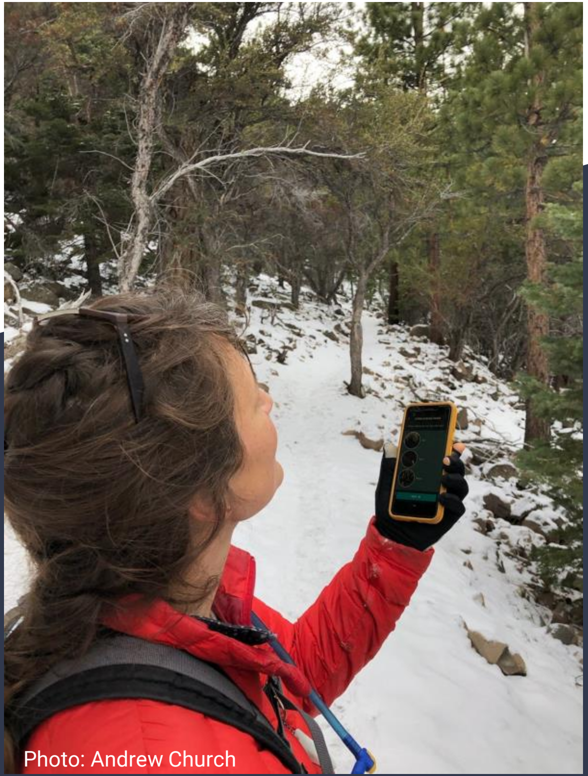
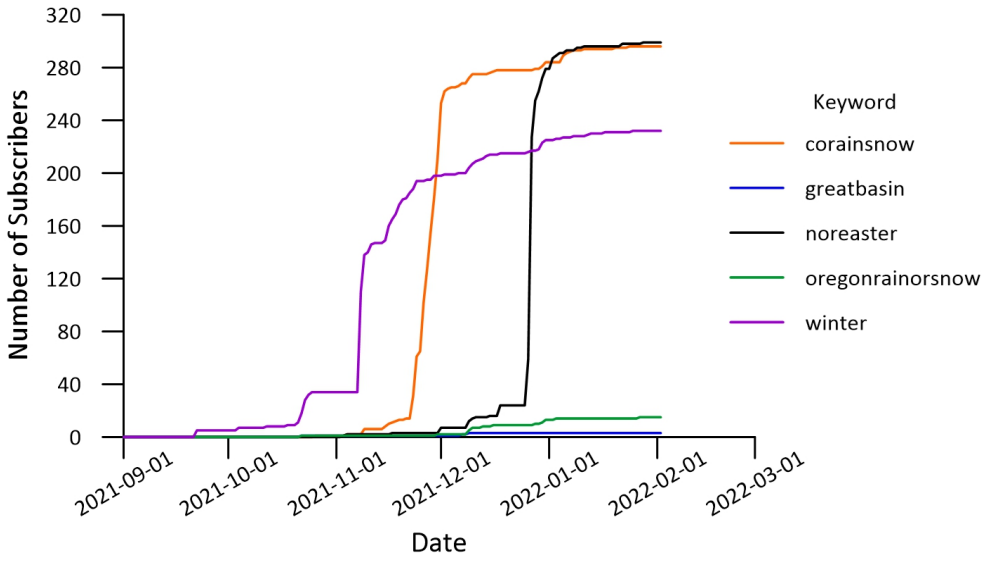


Photo: Andrew Church

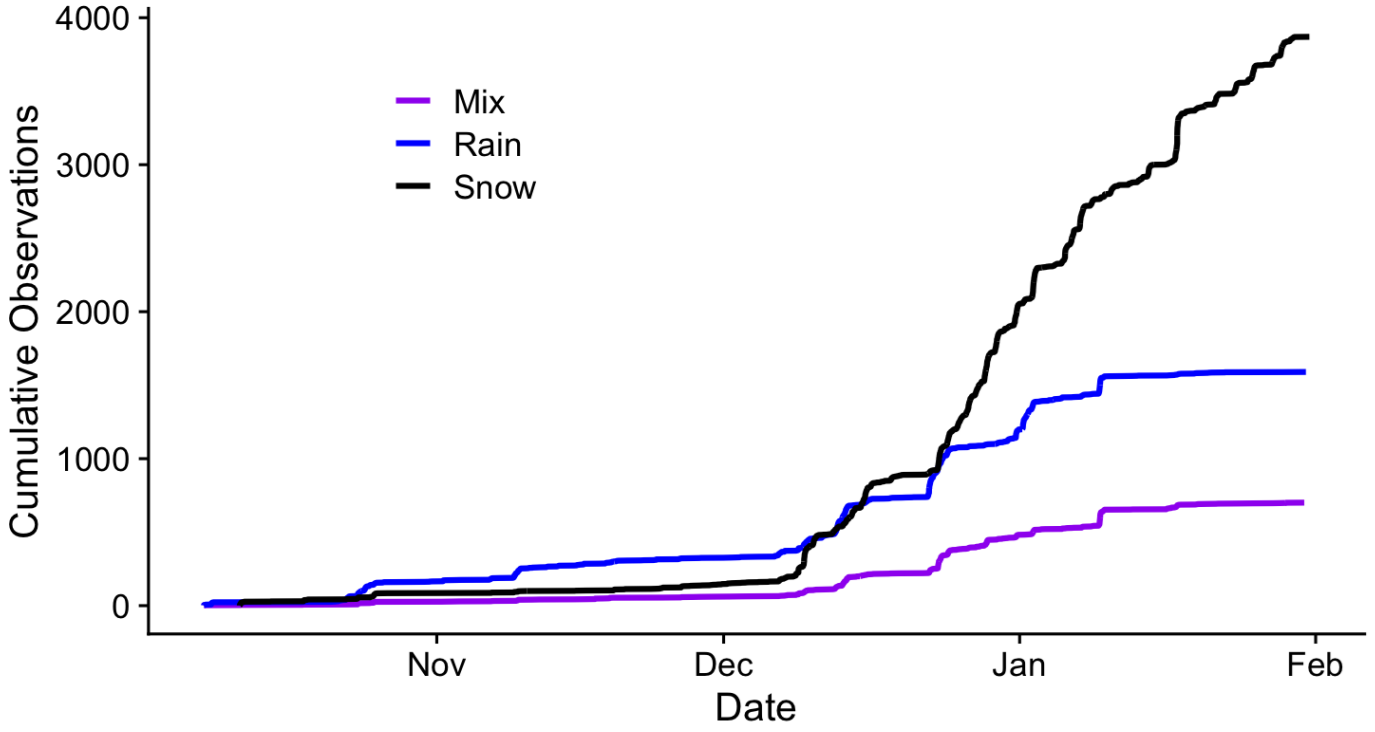
Get started! Sign up via text: 855 909 0798

Region	Keyword
California/Nevada	WINTER
Colorado	CORainSnow
Northeast	NorEaster
Oregon	OregonRainorSnow
Great Basin	GreatBasin

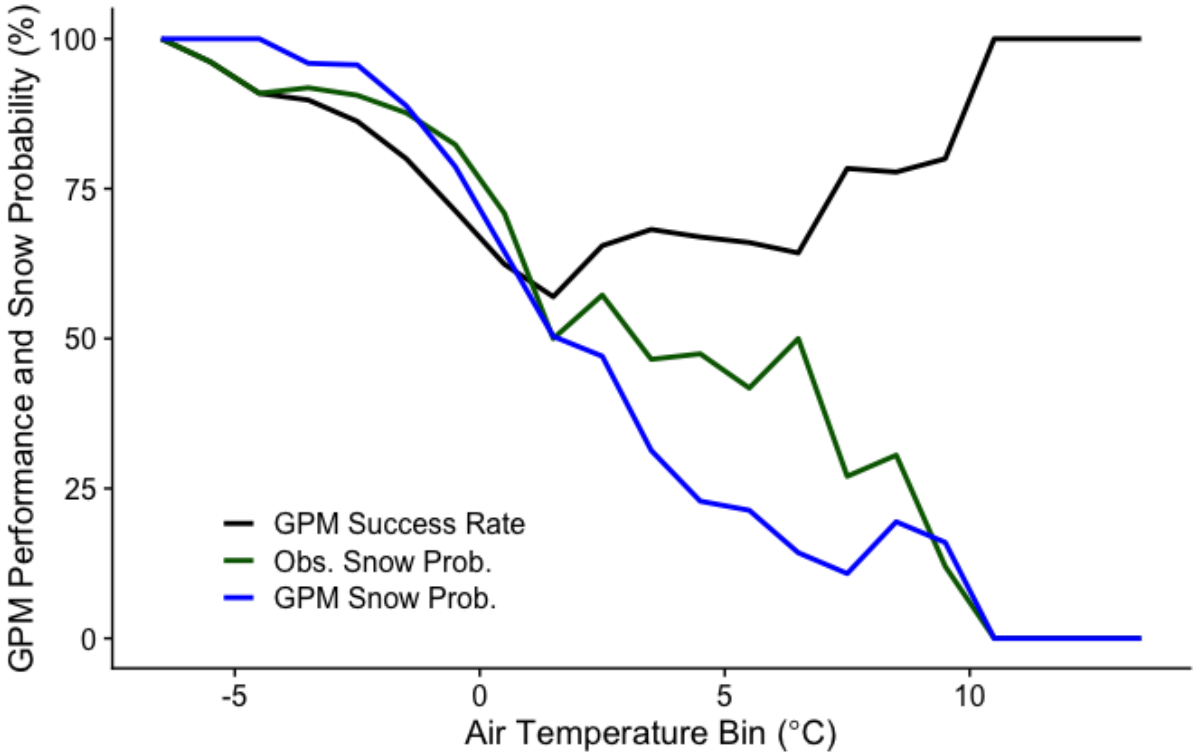


You'll receive the link to open the app in your browser, and easy instructions to participate.

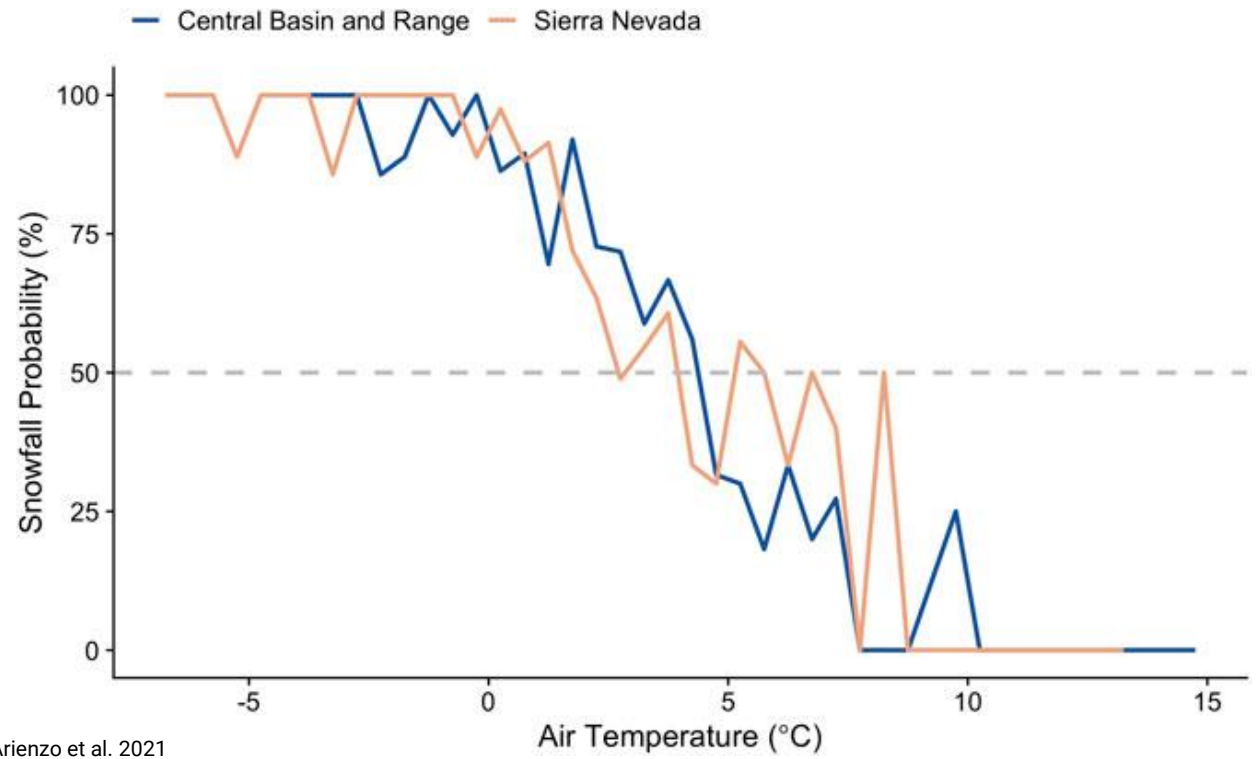
What have we seen so far this season?



How will this help improve estimates of precip phase?



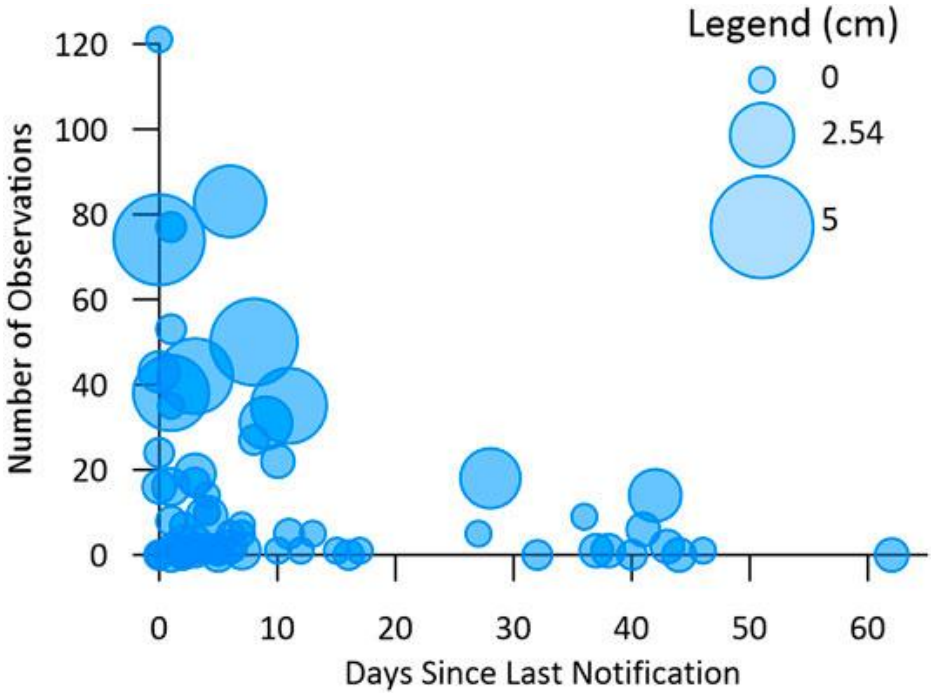
Probability curves: 2020-2021 in the Sierra Nevada and Great Basin ecoregions



Source: Arienzo et al. 2021

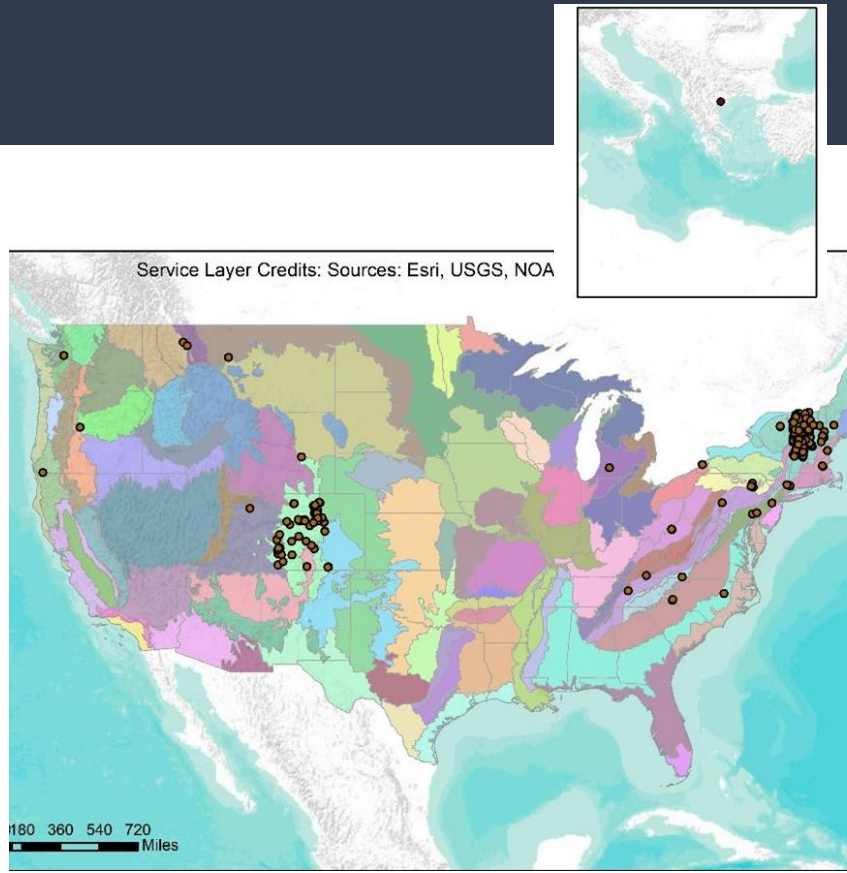
The human dimension

Photo: Monica Arienzo/DRI

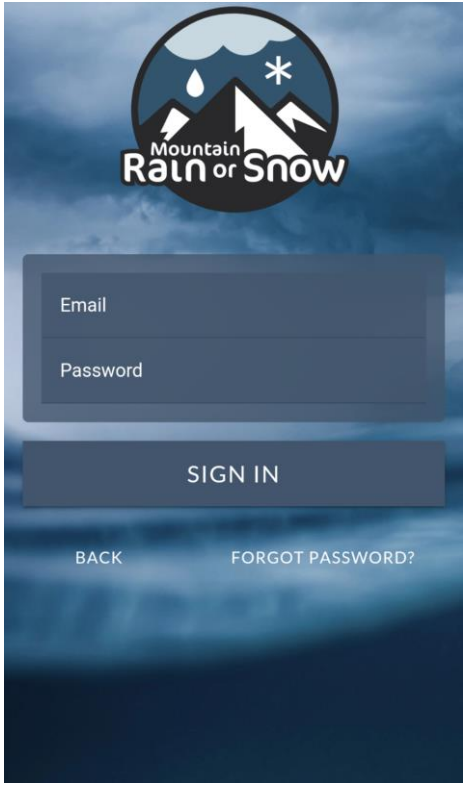


Diversity of ecoregions

OID	US_L3NAME	Count_US_L3NAME
0		4
1	Arizona/New Mexico Plateau	1
2	Blue Mountains	1
3	Colorado Plateaus	19
4	Eastern Great Lakes Low lands	178
5	High Plains	22
6	Klamath Mountains/California High North Coast Range	1
7	Northeastern Coastal Zone	20
8	Northeastern Highlands	712
9	Northern Allegheny Plateau	17
10	Northern Piedmont	3
11	Northern Rockies	4
12	Northw estern Glaciated Plains	2
13	Northw estern Great Plains	1
14	Piedmont	7
15	Puget Low land	1
16	Ridge and Valley	4
17	Southeastern Plains	1
18	Southern Michigan/Northern Indiana Drift Plains	1
19	Southern Rockies	85
20	Southw estern Tablelands	3
21	Western Allegheny Plateau	7



How to participate:

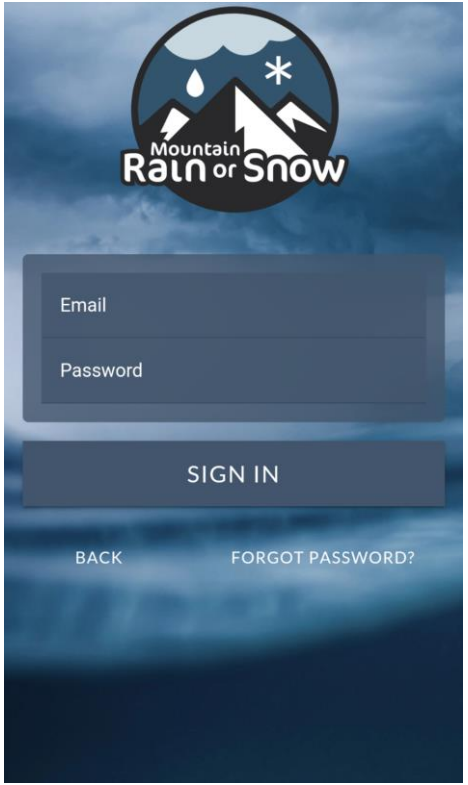


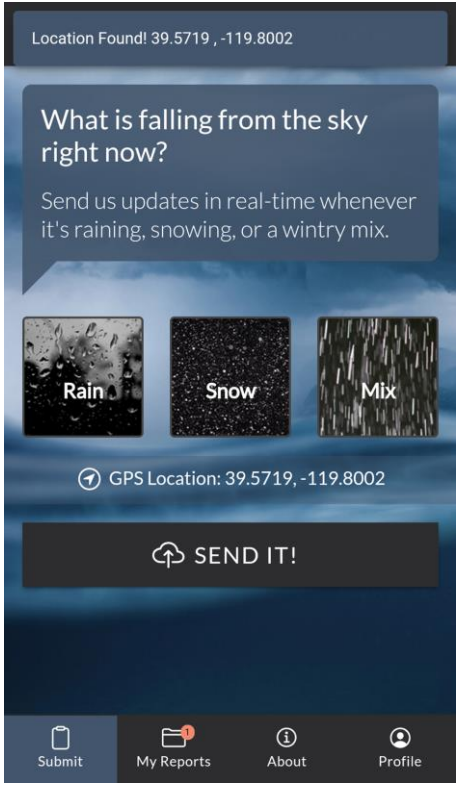
Ensure location services are enabled

Wait a second... it's an app with a web address?

Yes! RainOrSnow.app is a progressive web app, which means it's accessed through your browser

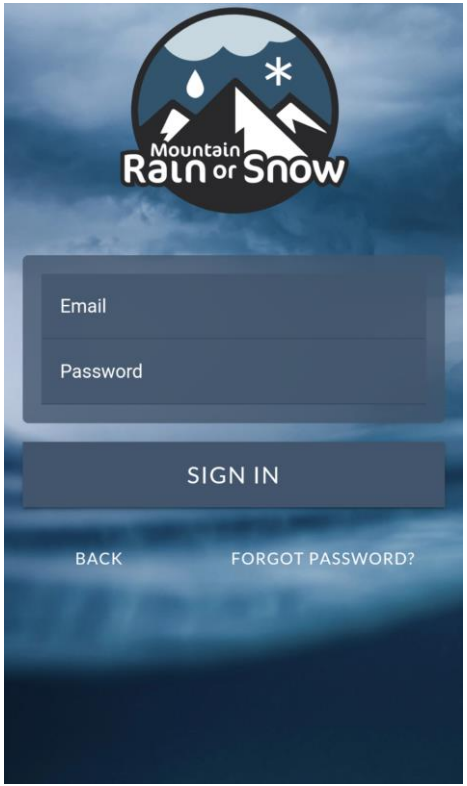
How to participate:

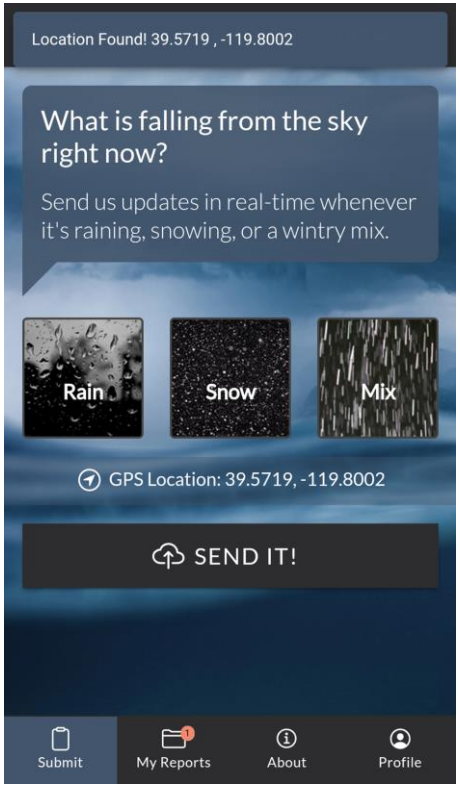


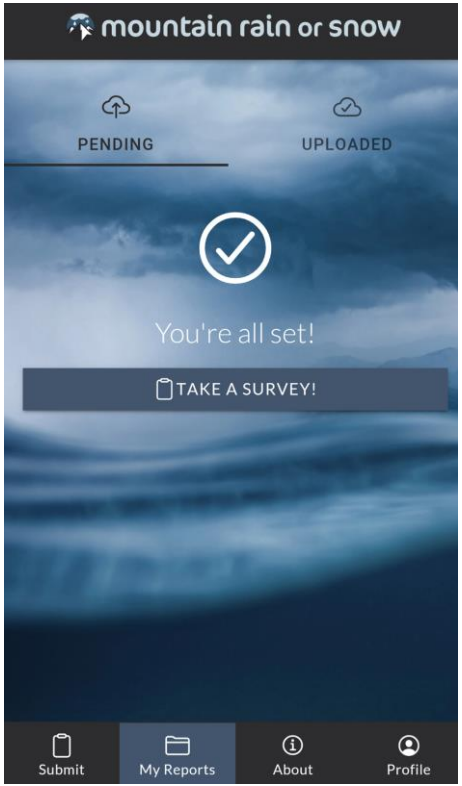


If you have to think about it, it is probably mixed precipitation.

How to participate:



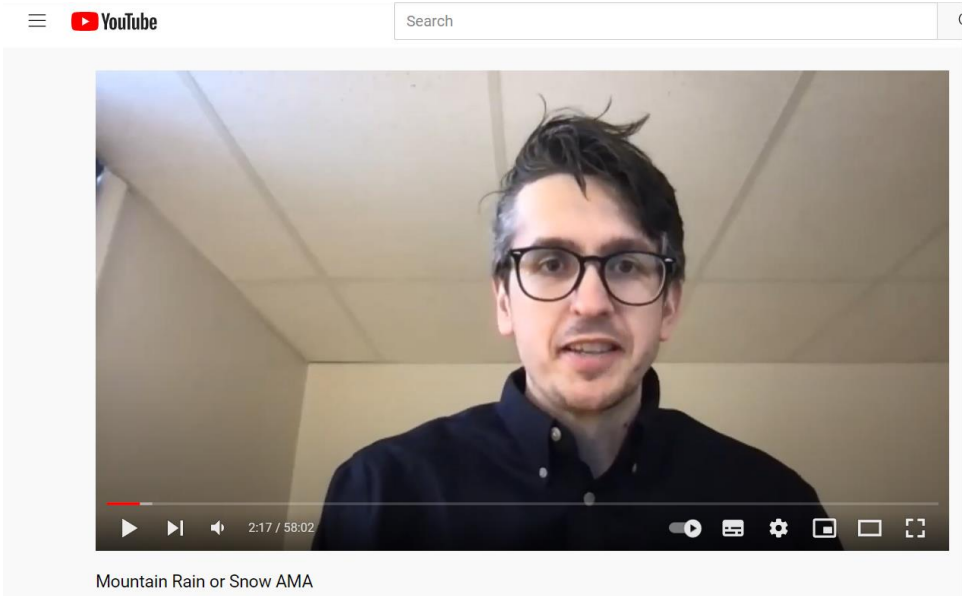




Navigate using the tabs at the bottom

Want to know more? Check out our AMA.

bit.ly/MROS-AMA



Here’s a recap on how to sign up.

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Great Basin	GreatBasin

Thank you!

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Jessica Garrett
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Monica Arienzo
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Meghan Collins
Co-investigator, Desert Research Institute. Lead on engagement and communication strategy.

Benjamin Hatchett
Co-Investigator, Desert Research Institute. Assist with community engagement, data analysis, and observations.

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