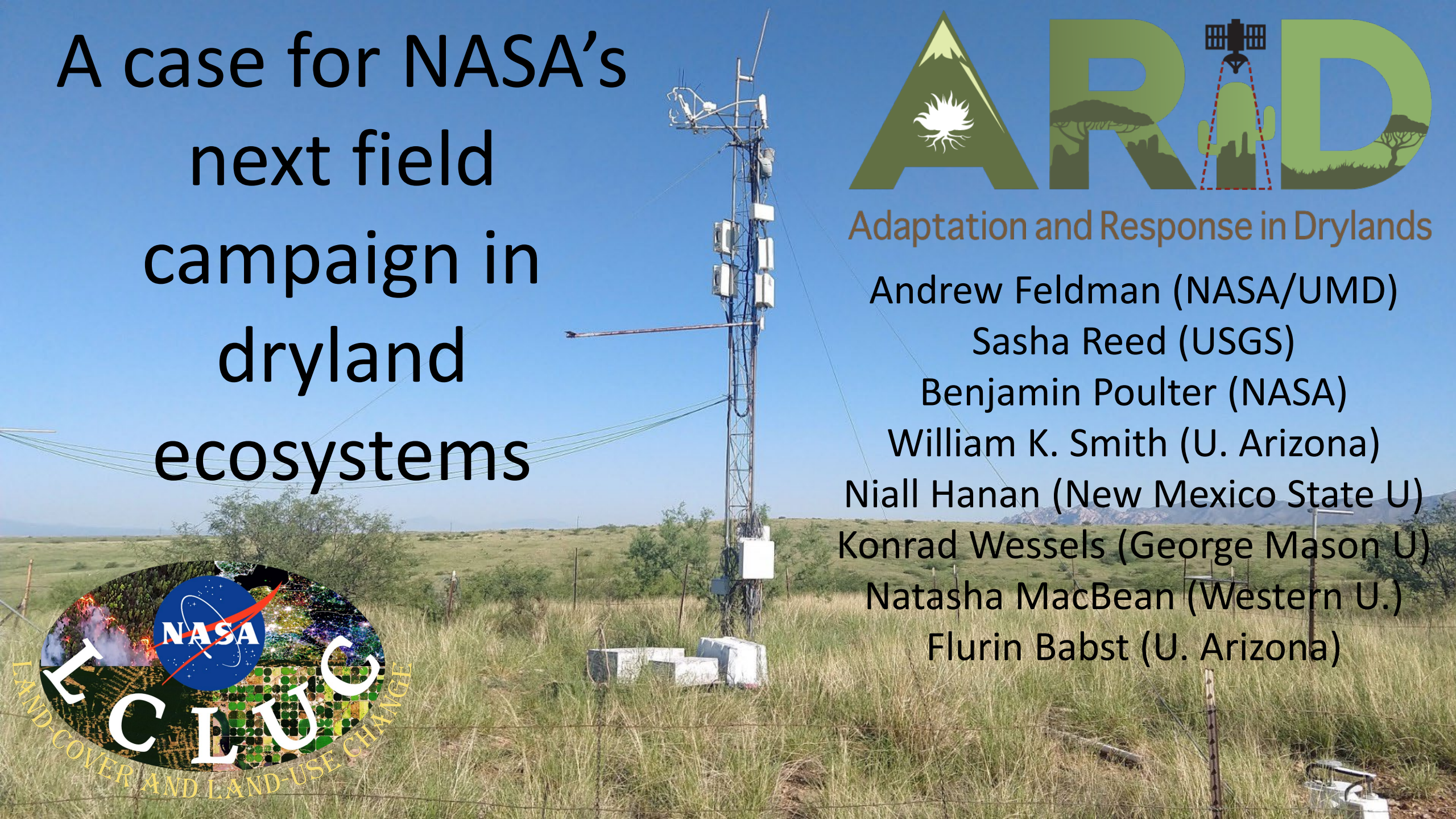
A case for NASA's next field campaign in dryland ecosystems



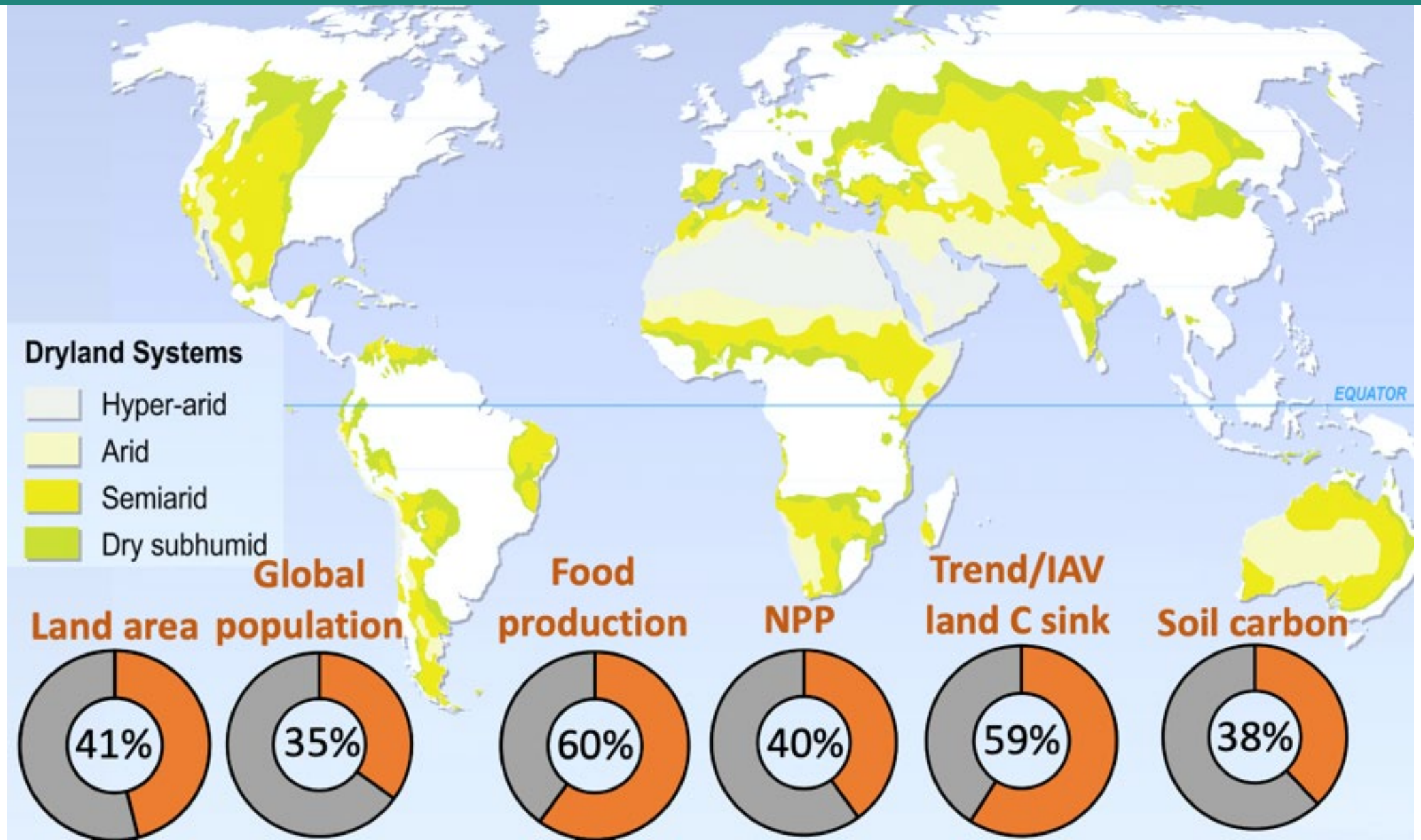
ARiD

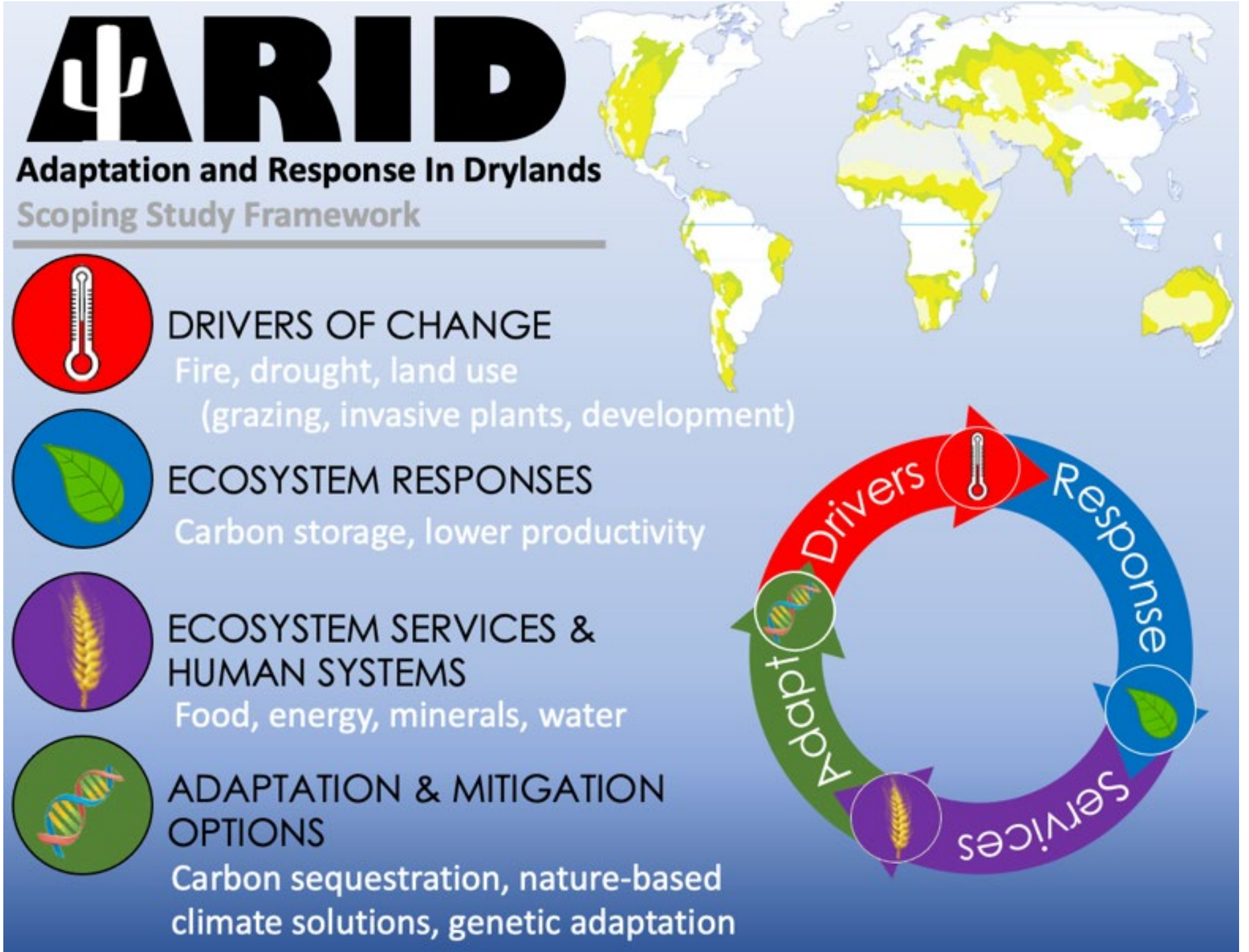
Adaptation and Response in Drylands

Andrew Feldman (NASA/UMD)
Sasha Reed (USGS)
Benjamin Poulter (NASA)
William K. Smith (U. Arizona)
Niall Hanan (New Mexico State U)
Konrad Wessels (George Mason U)
Natasha MacBean (Western U.)
Flurin Babst (U. Arizona)

NASA LCLUC LAND-COVER AND LAND-USE CHANGE

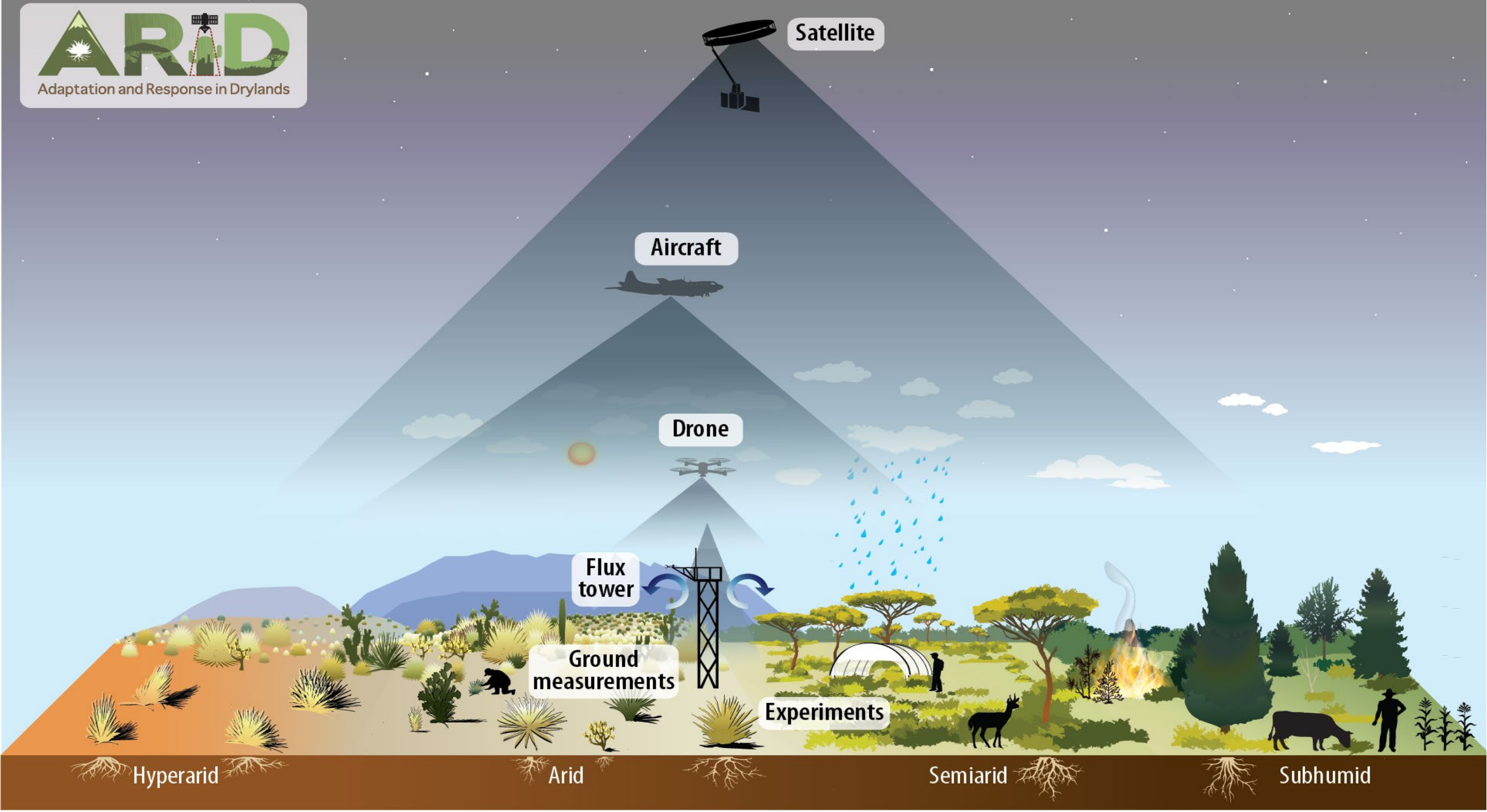
Why focus on drylands?





What is ARID?

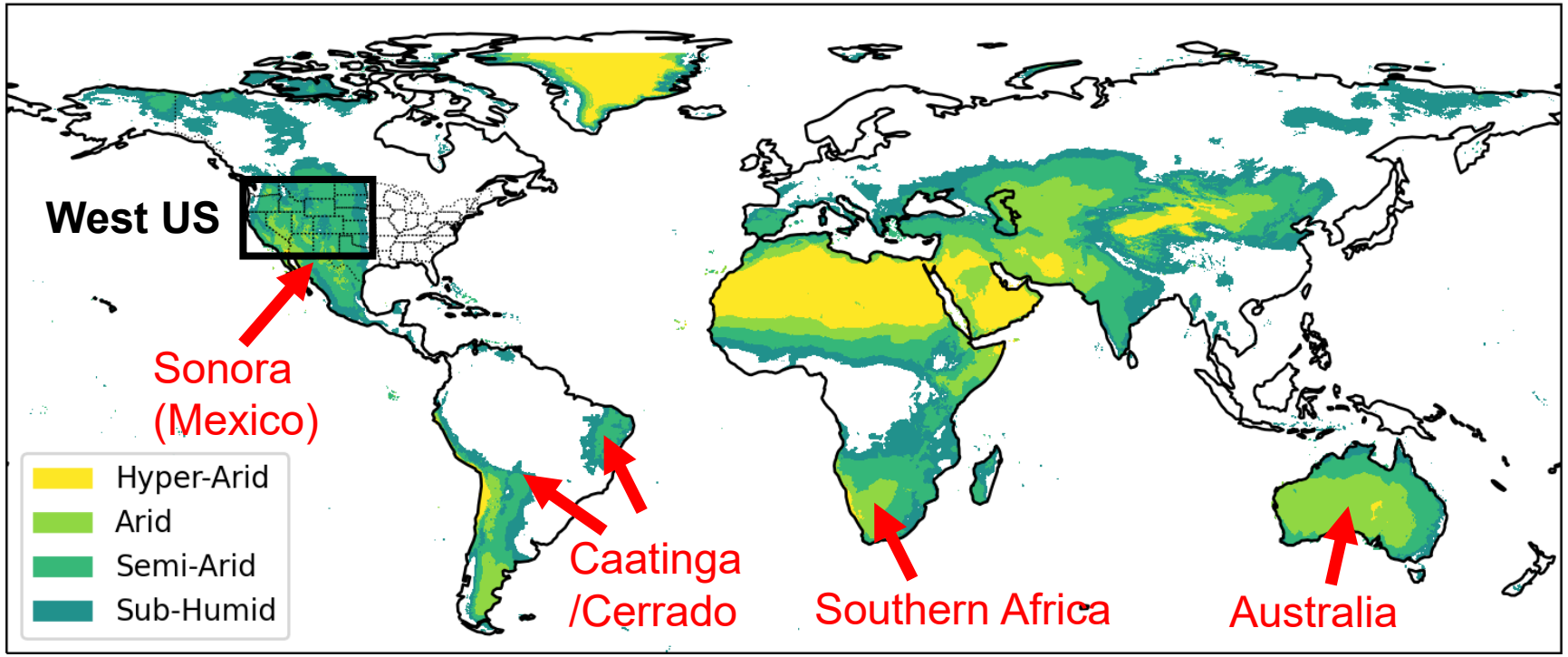
- **Fundamental science** to understand drylands
- **Applied sciences** aligned with ES2A



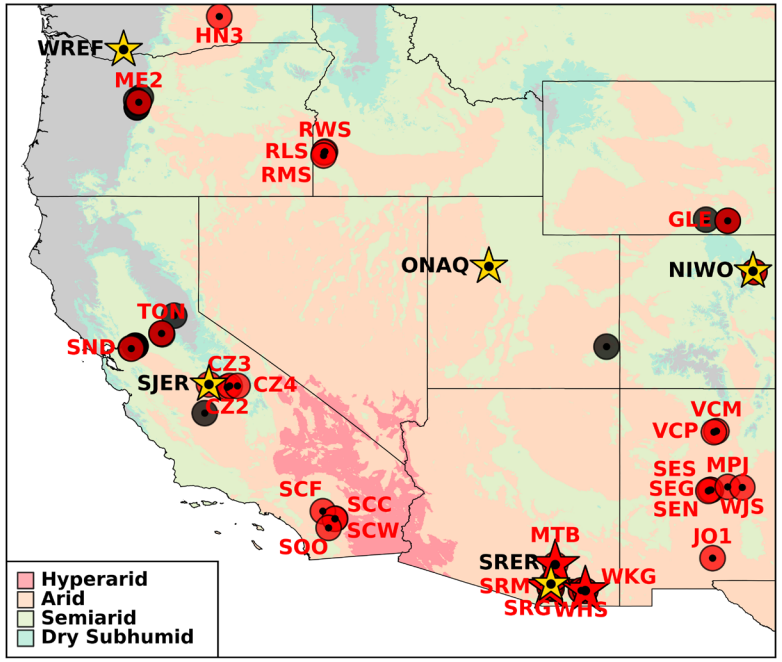
*Not to scale

AR00.

Global approach but **West US focus**



Much existing ground infrastructure in western US



- International engagement started in Red locations
  - Interest in flights and experiments

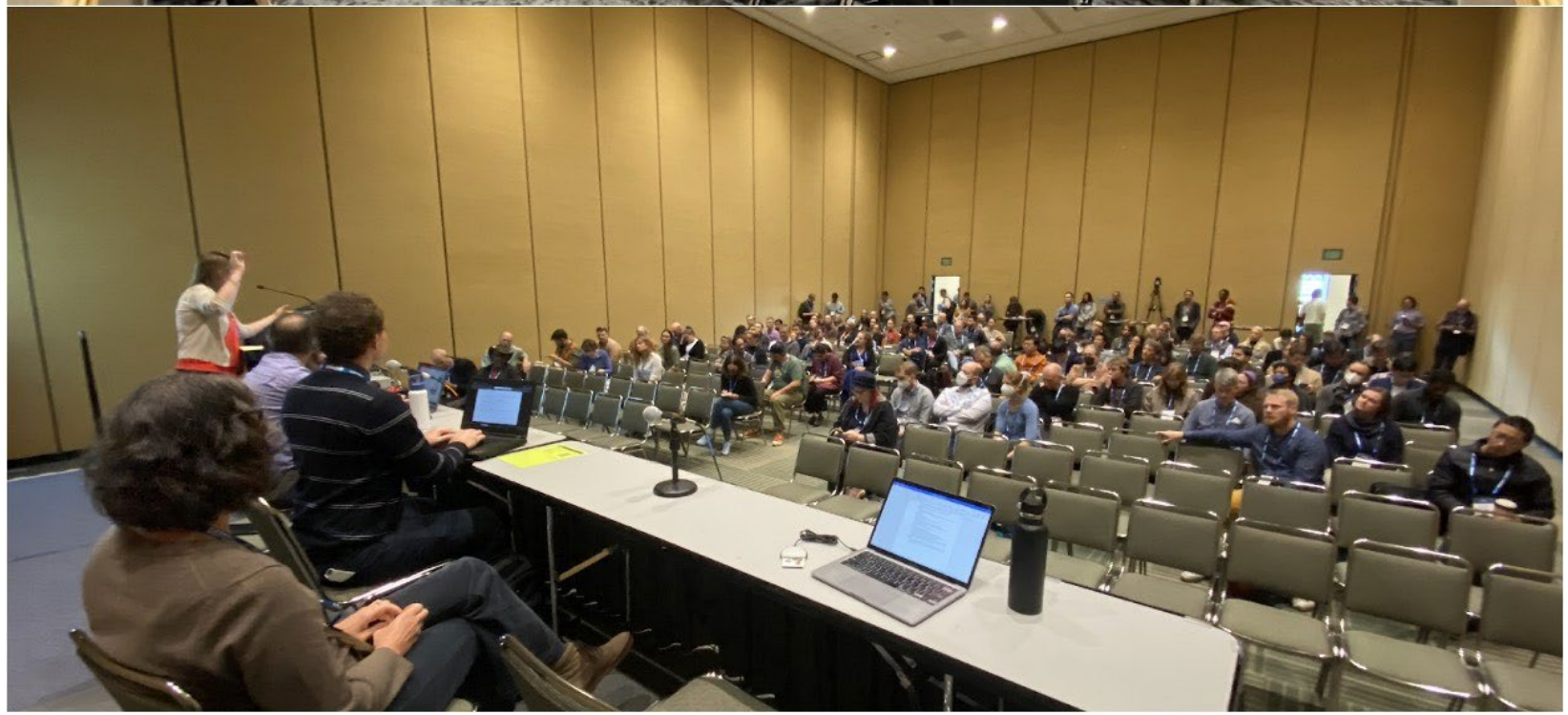
University of Arizona Kickoff Stakeholder Meeting

- 30 stakeholders
  - Bureau of Land Management (BLM)
  - USGS
  - USDA
  - NPS
  - Non-profit Companies
  - Mining Companies
- ~300 attendees of the science component

Townhalls

Ecological Society of America (ESA) Meeting Townhall

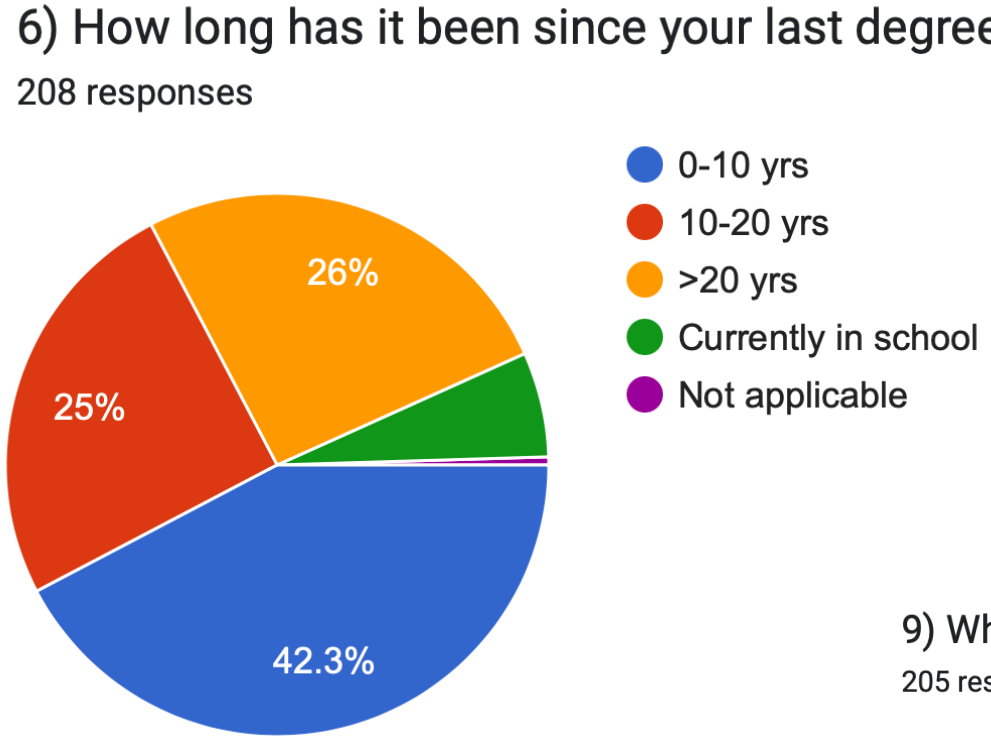
~60 participants



AGU Meeting Townhall

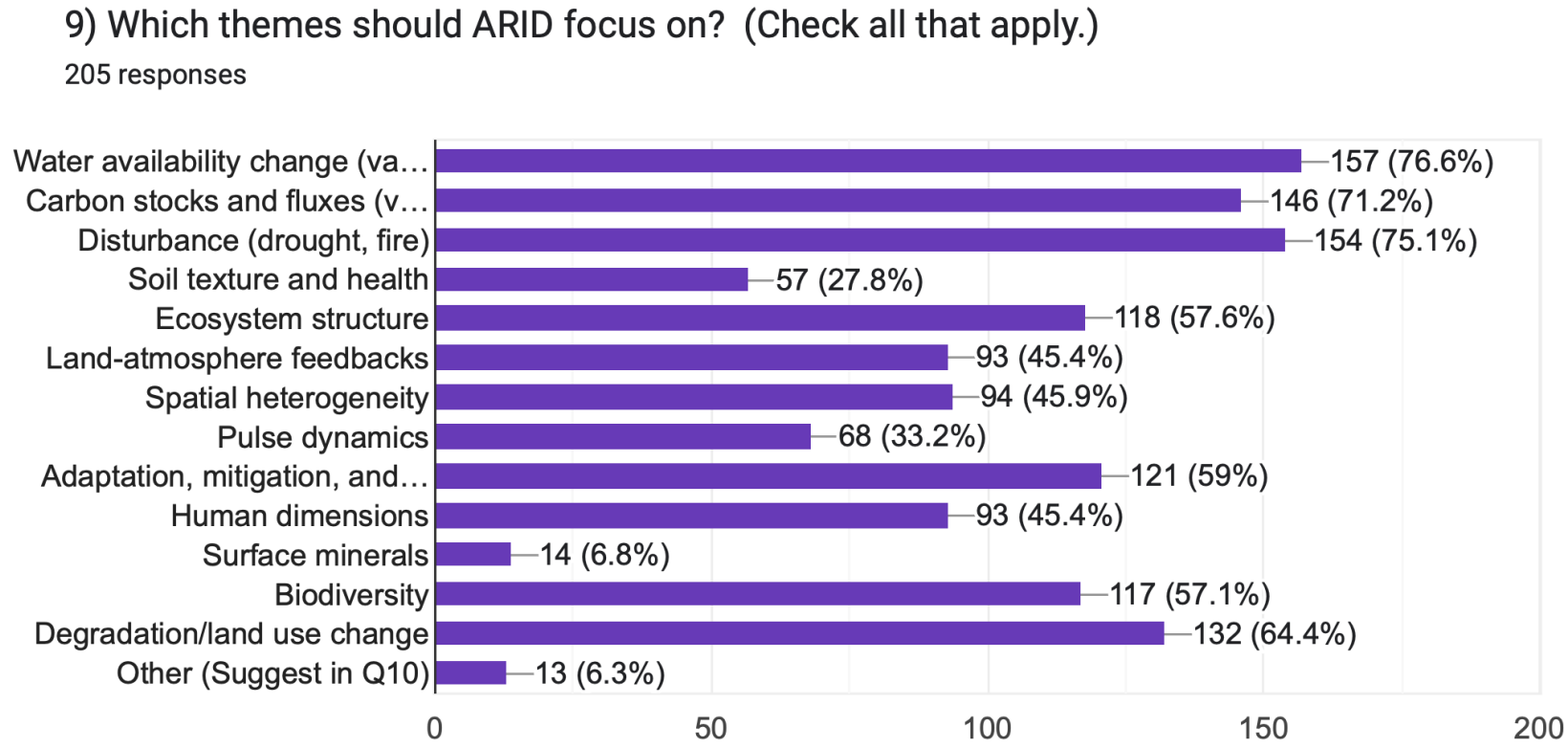
~160 participants

ARID Survey Feedback >200 responses



Strong early career support

Science theme input



ARID Science Themes

1) Water availability
2) Land-atmosphere interactions
3) Dryland climate variability: pulses, deluges, droughts

Drivers of Change

4) Carbon stocks and fluxes
5) Vegetation structure, biodiversity, and heterogeneity
6) Dryland geology and soil processes

Dryland Response

7) Land management and disturbance

Management and Services

8) Adaptation and mitigation

Adaptation under Change

Sasha Reed
(USGS)

Andrew Feldman
(NASA)

Ben Poulter
(NASA)

Bill Smith
(U. Arizona)

Marcy Litvak
(U. New Mexico)

Flurin Babst
(U. Arizona)

Konrad Wessels
(George Mason U.)

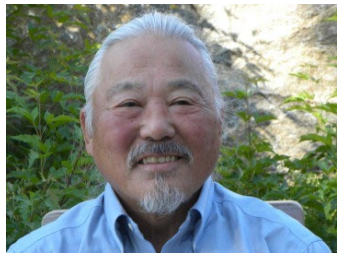
Niall Hanan
(New Mexico State U.)

Bob Swap
(NASA)

Russell Scott
(USDA)

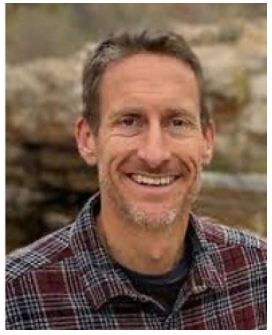
Jennifer Watts
(Woodwell Climate)

Natasha MacBean
(Western U.)

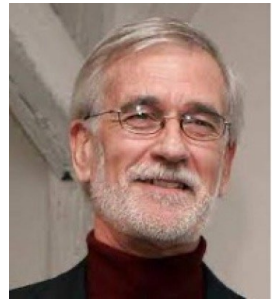


Dennis Ojima
(Colorado State U.)

Cibele Amaral
(U. Colorado)

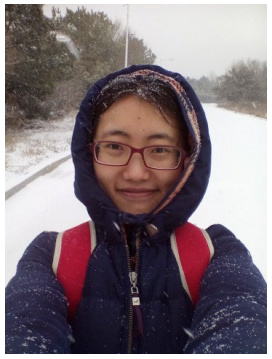


Joel Biederman
(USDA)



Compton Tucker
(NASA)

Julia Green
(U. Arizona)



Fangyue Zhang
(U. Arizona)

Jessica Guo
(U. Arizona)

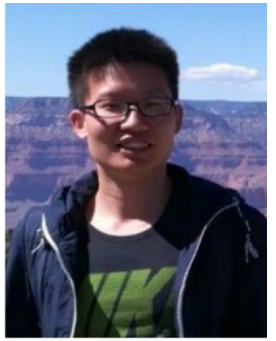
Charlie Devine
(U. Arizona)

Dave Moore
(U. Arizona)

Lixin Wang
(IUPUI)

Alicja Babst-Kostecka
(U. Arizona)

Wen Zhang
(U. Arizona)



Zheng Fu
(U. Arizona)

Timeline and Activities

- April-August: Working groups
- April-August: Stakeholder, tribal, and international engagement
- May: White paper outline
- September: White paper draft for community comment
- December: Final white paper submission

Get Involved!

- For questions, contact:
  - Sasha Reed, PI (screed@usgs.gov)
  - Andrew Feldman, Project Manager (andrew.feldman@nasa.gov)

- Please get involved with ARID:
  - Website: https://aridscoping.arizona.edu
  - Survey: https://aridscoping.arizona.edu/get-involved