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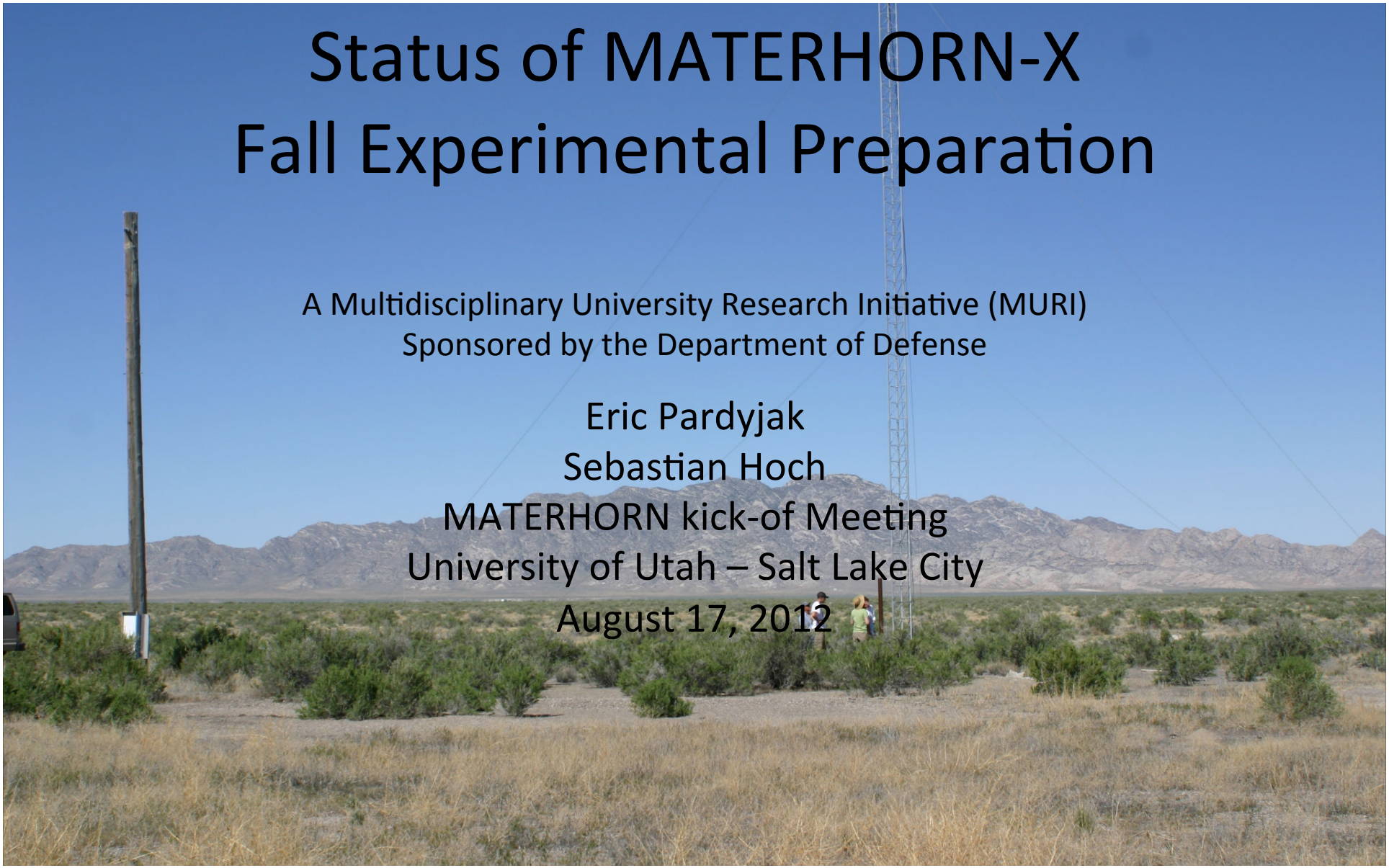
Status of MATERHORN-X Fall Experimental Preparation



A Multidisciplinary University Research Initiative (MURI)
Sponsored by the Department of Defense

Eric Pardyjak
Sebastian Hoch

MATERHORN kick-of Meeting
University of Utah – Salt Lake City
August 17, 2012

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Outline

- Team Member Update
- Preliminary Efforts
- Operational Plan
- Dry Run

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UTAH X-Team Members

- Faculty & Research Professors
  - Eric Pardyjak (Mech Eng), David Whiteman (Atmos. Sci.), Sebastian Hoch (Atmos. Sci.), J. Steenburgh (Atmos. Sci.)
- Graduate Students
  - Matt Jeglem (PhD, Atmos Sci)
  - Jeff Massey (PhD, Atmos Sci)
  - Derek Jensen (MS, Mech Eng)
  - Estel Blay (visiting PhD student from Barcelona)
  - Vigneshwaran "Vicky" Kulandaivelu (Post-doc Mech Eng)
- Undergrads (surface temperature stations)
  - Nipun Gunawardena (Mech Eng)

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Preliminary Efforts

- Many coordination visits with DPG
- Many organizational meetings with DPG, UND and UVA
- Granite Peak PWID Installation (June)
- UND Visit and Tom Pratt's initial on-site tests (June)
- Multiple mini-experiments to test equipment

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Operational Plan

- Team Effort – includes extensive input from UofU (including modelers), UND, UVA, DPG
- Updated plan may be accessed: http://www.mech.utah.edu/~pardyjak/MATERHORN/
- Also available on Windows Sky Drive

- Propose: Group MATERHORN Evernote Lab Notebook

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New X Participants

- Chad Higgins – Oregon State University – Deploying DTS system at the East Slope Site
- Marcus Hultmark – Princeton University – Testing fast-response, sub-miniature instrument that will measure fully resolved humidity, temperature and velocity at the Playa
- Ben Balsley - DataHawk Deployment

- No SUMO participation in Fall (Reuder and Cassano)

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Experiment Planning
Key Dates

27-30 August 2012:	Dry Run MATERHORN-X-FALL
23 Sept 2012:	Fall IOP 0
26 Sept. – 25 Oct. 2012:	MATERHORN-X-FALL
22 April – 19 May 2013:	MATERHORN-X-SPRING

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MATERHORN IOP TYPES

IOP Type	Definition 700mb wind speed	Number Fall 2012	Number Spring 2013	Start – End
Quiescent	< 5 m/s	3	2	1400LT -1400LT
		3	2	0200 LT -0200LT
Moderate	5 m/s – 10 m/s	2	2	1400LT -1400LT
		1	2	0200 LT -0200LT
Transition	Variable, could be >10m/s, front passage	1	2	Flexible (timed around the event)

Table 1 **Ideal distribution of MATERHORN IOP types and classifications.**

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Aerial Operations

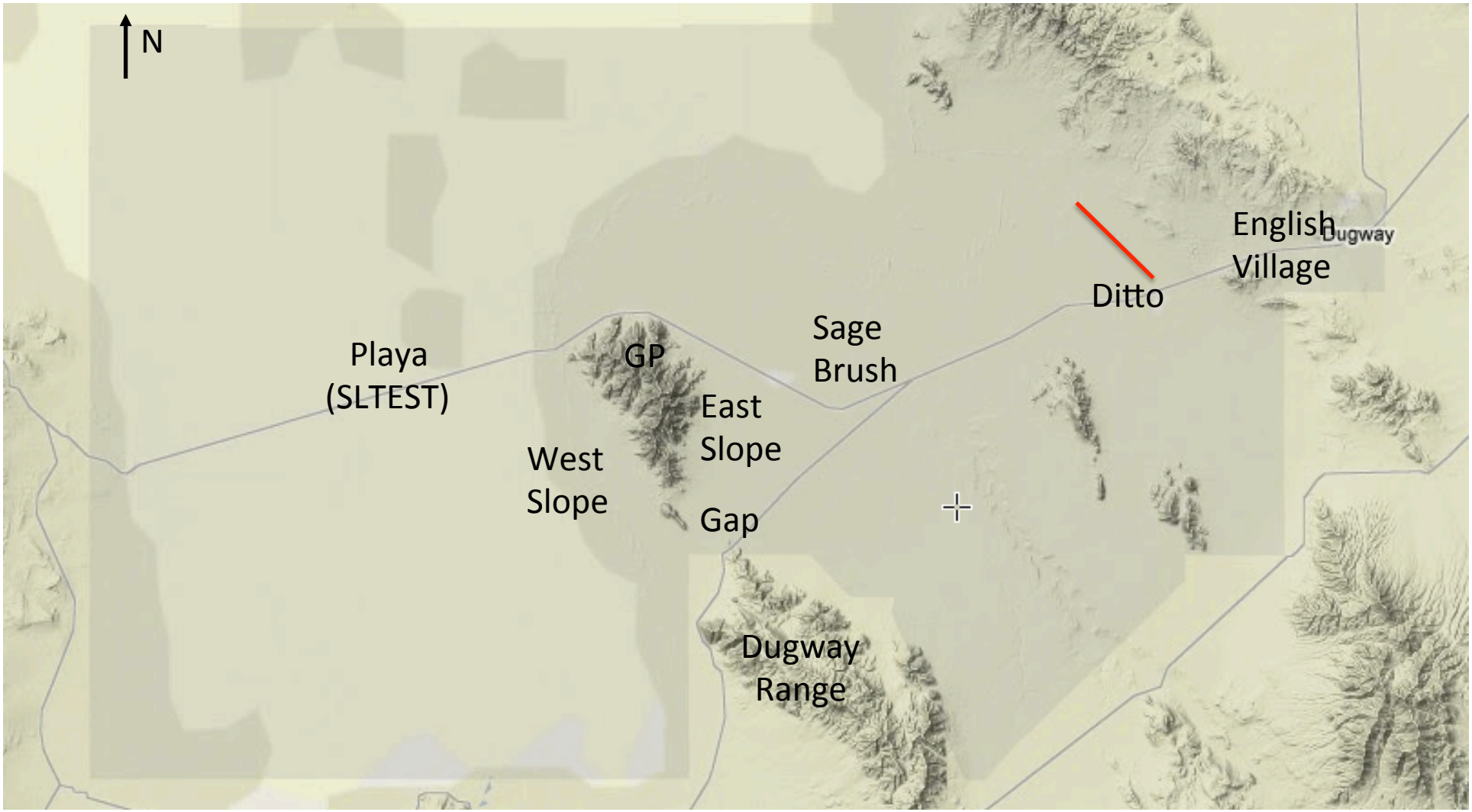
- Coordinated by Stephan DeWekker

Research Aircraft	Deployment Period	Research Flight Hours	Base of Operation
Flamingo (UAS)	IOP	NA	DPG Airport
DATAHAWK – University of Colorado (UAS)*	IOP	NA	Anywhere at DPG
Twin Otter (w/airborn doppler lidar)	IOP	??	DPG Airport (or possible airports nearby)

Table 2 List of MATERHORN research aircraft and unmanned aerial systems (UAS) with their deployment periods, number of research flight hours, and bases of operation.

Still need flight plans for IOPs

Overview of Experiment
Key Sites



~27 km from Ditto to the East Slope site

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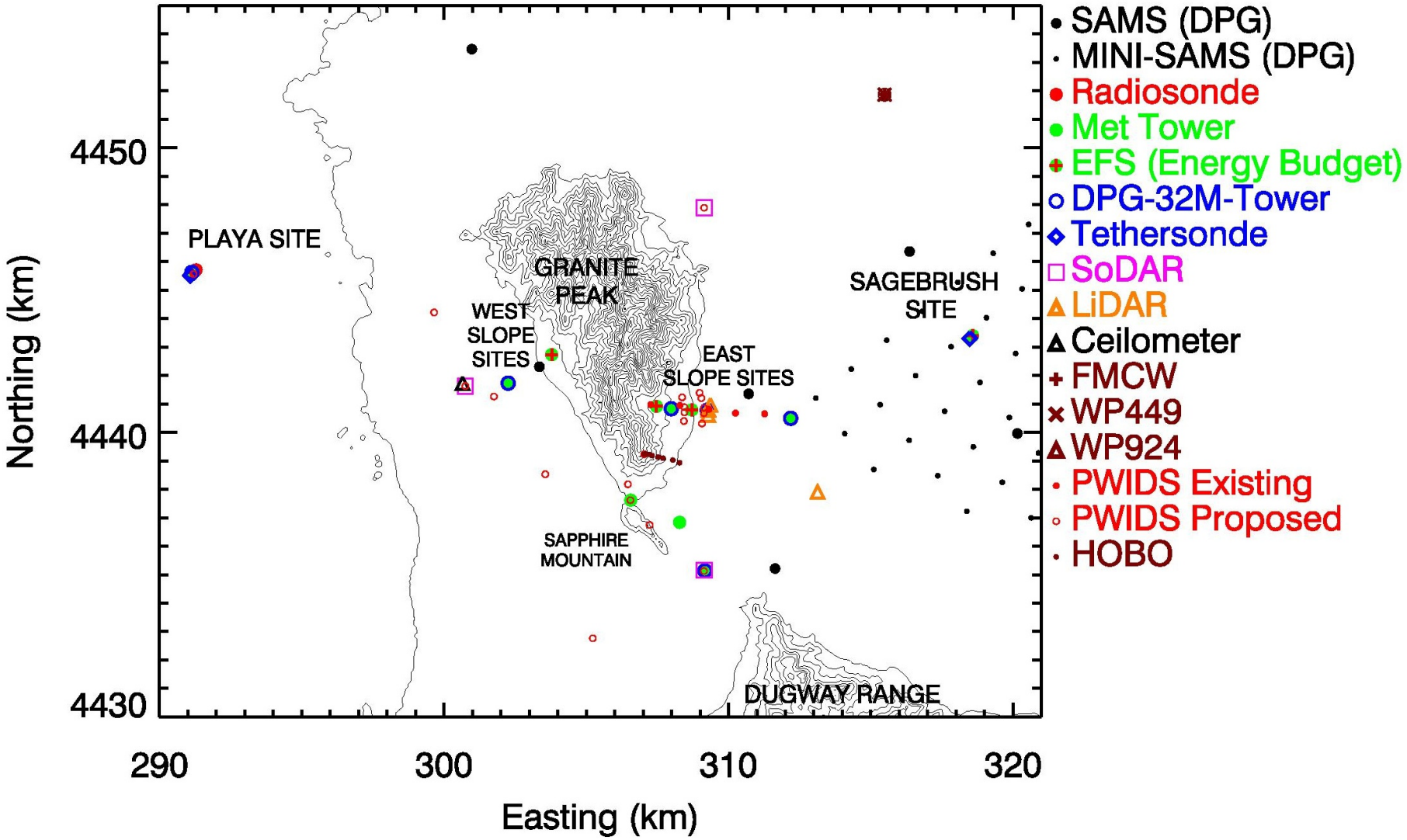
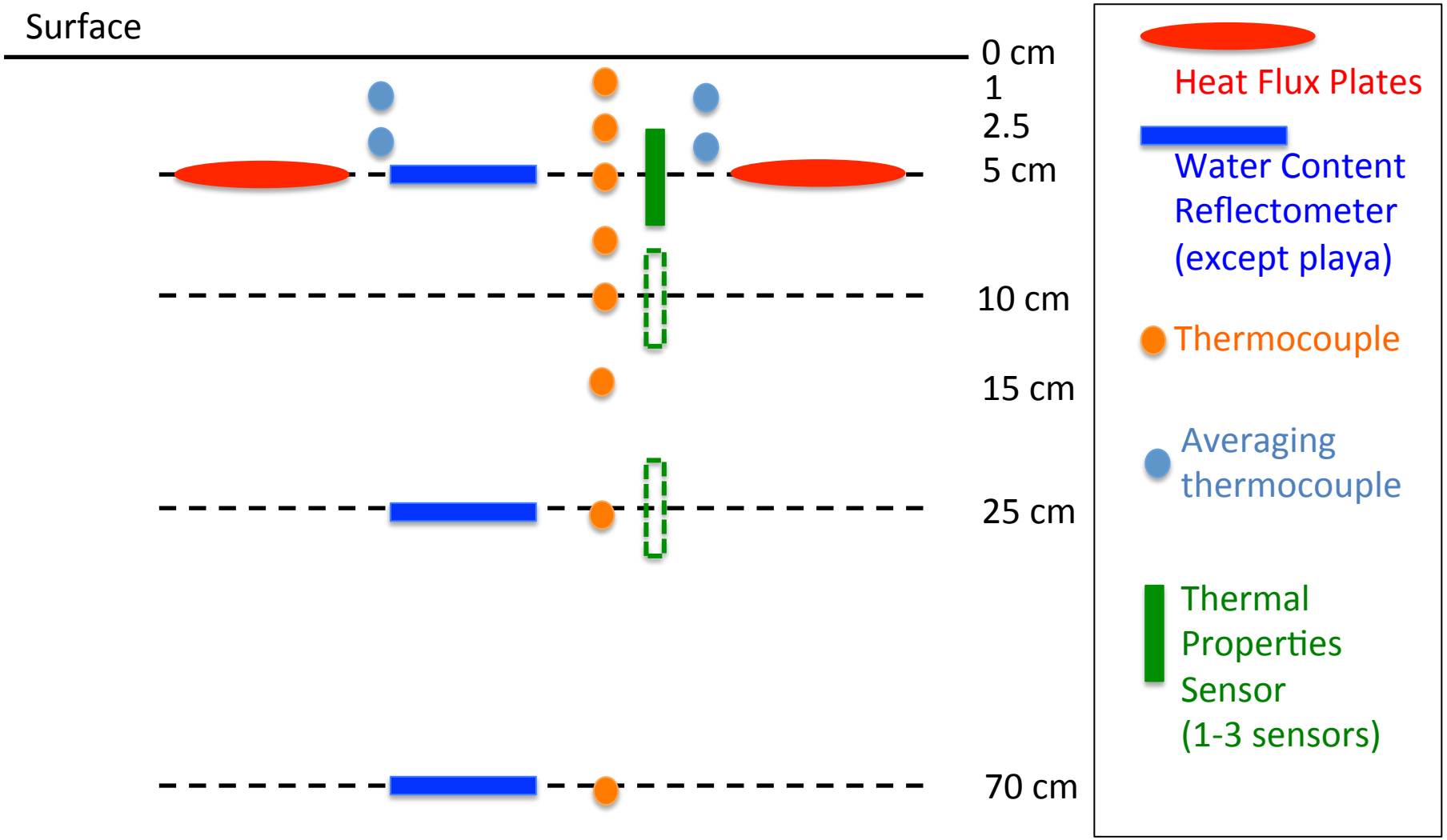
Overview of Experiment



Soil & Subsurface Observations at EFS-Sage/Slope/Playa



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Dry Run

- August 27-30
- Evaluate coordination and equipment
- Run through the daily timeline and simulate an IOP