DOW Requests throughout the years

- ~60 NSF Education Requests (DOW and/or MMs/Pods/Soundings)
- ~13 Undergrad Only Programs; Providing access to major instrumentation to non-R1 schools
- ~10 Underrepresented Requestors/Institutions/Populations
- First-time DOW requesters: Betcha’ can’t request just once
  - 11 Multiple education requests from an institution
    - Part of the curriculum **EVEN** though school does not have a radar resource
- Gateway to field project requests for less-experienced PIs
- Provides a direct, hands-on and immersive (not virtual) experience
- Really get an opportunity to experience field work (flip a switch, level the truck, listen to the sound of the TX/Antenna)
What is an education request?

• A really awesome opportunity for students operate and learn about state-of-the-art instrumentation and the associated science!

• A really awesome opportunity to engage the general public and K-12 students in meteorology!

**Track 1 (Education and Outreach):**
Track 1 proposals are requests for limited field or laboratory activities that target education and outreach. Track 1 proposals must include educational activities in formal and/or informal settings aimed at providing hands-on student training in field and/or laboratory based observational research, and/or provide significant public outreach through coordinated events.
What makes a good education request?

**Engage Multiple Classes:** Radar, Mesoscale, Forecasting, General Meteorology
- Undergraduate/Graduate
- Majors/Non-Majors

**Engage Local Community Groups:**
- K-12, Civic Groups, Museums
- University Open Houses, Local Conferences

**Engage Media:**
Local radio/TV/print, social media

**Engage Students**
- Lead data collection and outreach

**Engage Underrepresented Communities**
F-DEWS: Florida Institute of Technology, Melbourne, FL
PI: Lazarus

Students:
- 32
- Special DOW course
- Integrated existing instruments (sounding, rain gauges, etc.)
- NWS Forecast Partnership
- Van rental to transport students to IOPs

Outreach: Campus open house, local K-12 schools, Campus seminar (Wurman/Kosiba)

Media: NWS, campus radio/news, local news, Twitter/Facebook
MOBILE RADAR AS AN UNDERGRADUATE EDUCATION AND RESEARCH TOOL
The ERAU C-BREESE Field Experience with the Doppler on Wheels

Shawn M. Mlrad and Christopher G. Herbster

EERAU C-BREESE was an 18-day Doppler on Wheels educational deployment that investigated sea-breeze processes and convection across central Florida.

INTEGRATING CLASSROOM LEARNING AND RESEARCH
The Pennsylvania Area Mobile Radar Experiment (PAMREX)

by Yvette Richardson, Paul Markowski, Johannes Verlinde, and Joshua Wurman

Student-led

DOW RADAR OBSERVATIONS OF WIND FARMS
by Maule Toto, Eric Jones, Dustin Pittman, and David Sisson

Mobile radar observations provide insight into the types of convection that can be expected in WSR-88D and local television radar operations as wind farms expand to locations closer to operational radars.

THE HAWAIIAN EDUCATIONAL RADAR OPPORTUNITY (HERO)

by Michael M. Bell, Robert A. Ballard, Mark Bauman, Annette M. Foerster, Andrew Frabach, Karen A. Kosba, Wen-Chau Lee, Shannon L. Rees, and Joshua Wurman

A Doppler on Wheels polarimetric radar was brought to Hawaii for the first time on a National Science Foundation educational deployment as part of a radar meteorology course at the University of Hawaii at Manoa.
Customization

• Engage the facility in planning, needs, ideas, etc.
  • Deployments
    • Canned Vs. Student-designed
  • Radar “Laboratory” exercises
  • Community Outreach
  • Course Design
    • Undergrad/Grad
    • Radar Expertise

• Software
  • Can provide help installing/using analysis programs
  • Custom GURU software for visualization
    (easy to use in Windows!)
  • Can bring computers for your use
Don’t take our word for it...

• I’ve been waiting a long time for some serious field experience. I think it’s awesome to introduce this into the department.

• I really enjoyed the TOM experiment, and I think it really gave me a much better perspective on how the processes work. I'm definitely a hands on learner, and it really gave me a much better understanding, rather than just sitting in a classroom learning it off of a powerpoint. I'd definitely recommend that it be used again if possible!
Large Outreach Events

1000s of People

- IMAX Tour (USA)
- Earth Day (Dallas, TX)
- Frontier Days (Cheyenne, WY)
- Engadget (New York)
- CES (Las Vegas, NV)
- USA Science and Engineering Festival (Washington D.C.)
Student engagement in field projects...

- FARM facility instrumentation is designed to be student operable
- Requestors and their students can operate DOWs with ~2 hours of training
- Student operators play major roles in projects
  - E.g., VOTREX2, PECAN, OWLeS, RELAMPAGO, PERiLS, BEST
- No onsite student supervision of student operators
  - E.g., PERiLS, RELAMPAGO, WINTRE-MIX
Community engagement in field projects...

Impromptu
- RELAMPAGO
- PERiLS

Local School Visits
- OLYMPEX
- OWLeS
- GRAINEX
- PERiLS

Community Events & Media
- PECAN
- WINTRE-MIX
1\textsuperscript{st} Annual Radar Institute...there will be a 2\textsuperscript{nd}!

Provides an opportunity for undergraduate students to:

- Learn about radar theory, data, and analysis
- Learn about field projects and deployment
- Put together a radar!
- Operate radar and other instrumentation in their own field project
- Analyze and present results