The Makings of an International Field Campaign

José Meitín NCAR Earth Observing Laboratory Field Projects Services





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World Wide Experience

CEPEX: Central Equatorial Pacific Experiment

Coupled Ocean-Atmosphere System

Development

Deployment Data Services

DYCOMS-II: The Dynamics and Chemistry of Marine Stratocumulus Phase II

EPIC2001: East Pacific Investigation of Climate Processes in the

FASTEX: Fronts and Atlantic Storm Tracks Experiment

ERICA: Experiment on Rapidly Intensifying Cyclones over the Atlantic



SHEBA: Surface Heat Budget of the Arctic Ocean STORM-FEST: STormscale Operation and Research Meteorology Fronts Experiment Systems Test TAMEX: Taiwan Area Mesoscale Experiment

TOGA COARE: Tropical Ocean Global Atmosphere Coupled Ocean Atmosphere Response Experiment

VORTEX: Verification of the Origin of Rotation in Tornadoes Experiment



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Remote Sensing Facility

Maintains and deploys a suite of world-class remote sensing instruments (radars and lidars) in support of the atmospheric science community

Develops innovative and state of the art "next-generation" remote sensors

Performs fundamental atmospheric research utilizing RSF and other instrumentation

Deployme





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NCAR S-Pol Radar



Deploymen

10 cm Doppler, polarimetric radar Highly portable, six 20 ft. seatainers Diesel generator powered Easy set up Peak power 1 Mw 1 degree beamwidth antenna Suite of Doppler and polarimetric variables Doppler measurements, polarimetric-based rainfall maps, hydrometeor identification Internet ready Requested via NCAR/NSF and deployments funded by Deployment Pool. Well suited to international deployments.



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Research Aviation Facility

Provides unique airborne platforms and airborne measurement capabilities that address scientific needs of the atmospheric research community

Develops new instrumentation to address gaps in current airborne measurement capabilities

Serves as a community resource for airborne measurements and operations







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In-Situ Sensing Facility

Maintains and deploys a flexible, multi-faceted network of integrated, configurable insitu and radio and optical profiling remote sensors that is robust, dependable wellcalibrated operate with minimal oversight

Leading developer of dropsondes, which extend insitu profiling to remote locations

Developmen

Deploymer





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915-MHz Profilers

- Atmospheric Research
 - Profilers purchased or developed by university or federal government research groups
 - Profiler technology not as complicated as high frequency scanning radars
- Universities with 915 MHz profilers include:
 - NCAR (three ISSs & one MAPR)
 - U. Alabama at Huntsville
 - McGill University
 - U. North Dakota
 - CU Boulder
- Federal Labs with 915 MHz profilers include:
 - NOAA ESRL
 - DOE ARM
 - Argonne National Lab







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National Science Foundation

Computing, Data and Software

Creates integrated software and data system services that are at the heart of state of the art observing systems

> Enhances field operations through innovative application and implementation of communications technologies that foster scientific interaction and enable expanded field program audiences

Provides data management services for field campaigns and subsequent research efforts, including stewardship and curatorship







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FPS Field Project Services

1. Program Planning and Field Implementation:

Provide the requisite infrastructure for effective development of program/project field design and implementation plans, coordination of field operations for the meeting the scientific objectives.

2. Scientific Data Management:

Provide all facets of data collection and dissemination of information on the activities of national and international field projects.

3. Logistics: *Provide specialized logistics support; administrative support and organizational management; administrative support for international protocols and agreements.*

4. Education and Outreach: Support education activities related to activities in program support, field projects, and data management.







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Scope of Field Campaign Planning and Operations

- Interface with investigators & facilities
 - (International, Multi-national, Multi-agency)
- Site Selection, Space, Facilities, Coordination with Local Host
- Operations Management (ATC Coordination, Facility Direction)
- Communications Plan (Including Data Access; LAN)
- Forecast Coordination (Data Access, Display, Experts)
- Field Catalog
- Data Management—In-field Access, Data Integrity (Metadata, Completeness, Long term Archive, Compatibility)
- Prepare Operations and Data Management Plans
- Customs, Immigration, Security, Clearances, Permits
- Project Timeline







Field Campaign Considerations

- Coordination Phase
- Long-term Monitoring
- Pilot Studies
 - Proof of Concept (refine scientific goals)
 - Proof of Design
 - Ramp-up Time
 - Data Management Coordination
 - Operations (ATC, Observing Facilities, Forecast Teams)
 - Communications Tests
- Field Project





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Questions?

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