

# AMF2 MAGIC Logistics & Operations

**Nicki Hickmon**

**AMF2 Site Manager**

**Environmental Science Division**

**ANL**

# Methodology



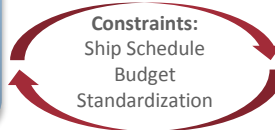
## Requirements

- Proposal
- Science Plan
- Location
- Instrument List
- Location – Horizon Spirit



## Design

- Site Visits
- Balloon Launching Location
- Instrument Layout
- Power Availability
- Communications Availability
- Engineering Analysis & Structural Design
- American Bureau of Shipping Approval



## Build

- Subcontracts
- Host
  - Welding/Machining
- Shipping/Transport
- Access
- Gantry Cranes
- Special Requests



## Operate

- Safety & Training
- Change Management
- Preventative/Corrective Maintenance
- Status Information
  - DSView/Daily Logs/Reports
- Schedule



## Relocate

- Order Amid the Chaos
- Planning & Training
- Shipping
- Host Locations



# STORMVEX



Three AMF2 Site Locations

- Valley Site
- Christie Peak – Cloud Base
- Thunderhead Peak – In Cloud

One Storm Peak Laboratory Location

- Mt. Werner Peak

Six Day Week Operations

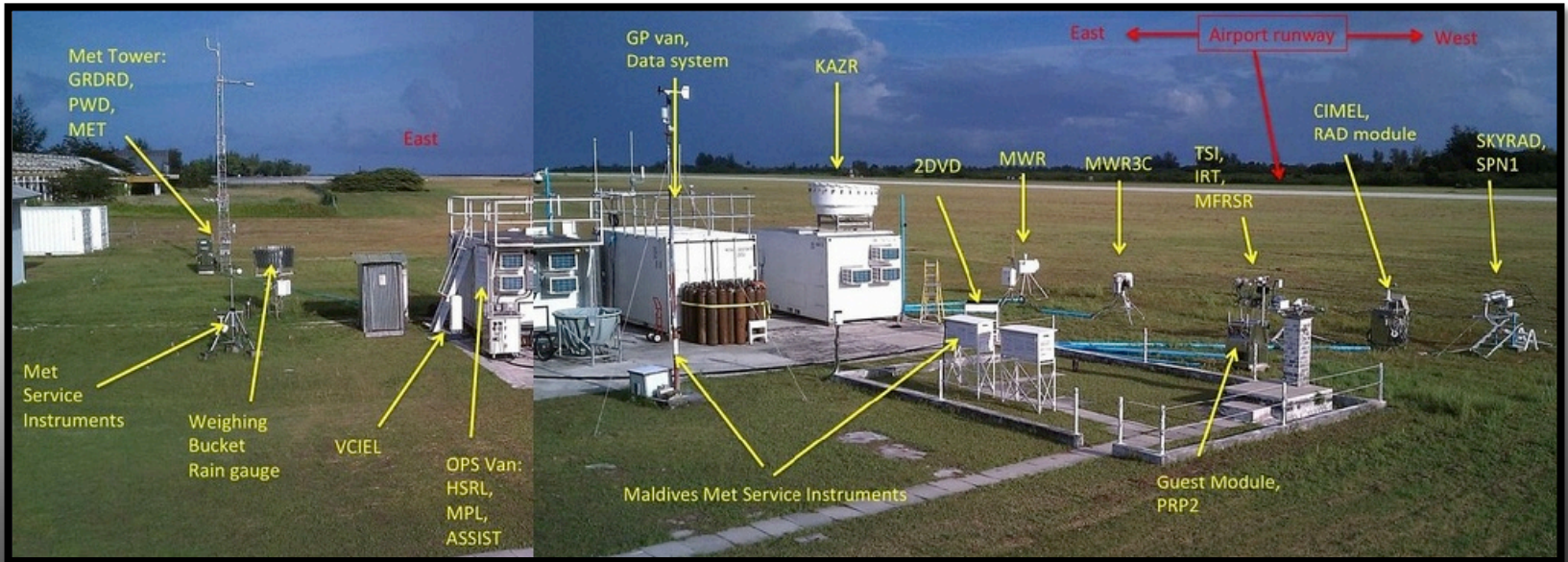
Seven Day Week Balloon Launching



**Steamboat Springs, CO**



# AMIE-GAN



Two AMF2 Site Locations

- Airport Site
- Wharf Site (SACR)

Six Day Week Operations

Seven Day Week Balloon Launching

Four DYNAMO Site Locations

- NCAR/EOL's S-POL
- TAMU operated SMART-R
- NOAA P-3
- SAFIRE F20



**Addu Atoll, Maldives**



# Upcoming AMF2 Campaigns

## BAECC



Two AMF2 Site Locations

- AOS Collocated with SMEAR II
- Main Site in Reasonable Forrested Area

One Instrumenet Site Location

- SACR Radar

Seven Day Week Operations

Seven Day Week Balloon Launching

**Hyytiälä, Finland**

## ACAPEX



Credit: <http://www.moc.noaa.gov/rb/>

One AMF2 Site Locations

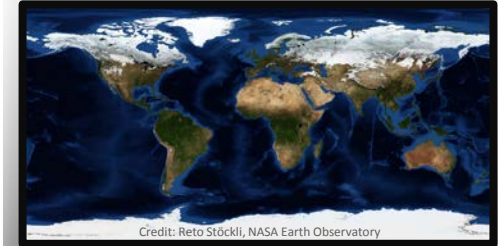
- R/V Ron Brown

Seven Day Week Operations

Highly Collaborative Operations  
Structure

**NOAA Research Ship Ron Brown**

## 2015-2016



Credit: Reto Stöckli, NASA Earth Observatory

Looking forward to interacting  
with YOU!!

**TBD**



# MAGIC



## One AMF2 Site Location

- Bridge Deck Limited Space
- Extensive reinforcements with American Bureau of Shipping Approval
- 4/day Standard Operations
- 8/day Intensive Operations

## Seven Day Week Operations

Seven Day Week Balloon Launching

**Horizon Spirit, Pacific Ocean**



# MAGIC - Instrumentation



## Baseline Instruments:

AOS  
ASSIST II  
BBSS  
BSRWP  
CSPHOT  
KAZR  
HSRL – Part 2  
Marine MET System  
MPL  
MWACR  
MWR  
MWR3C



Parsival Disdrometers

PRP/SPN System

RPH/HPU

SeaNav – Kearfott -> IXBlue HYDRINSIII

TSI

VCEIL

## Guest Instruments:

SASZE

UHSAS

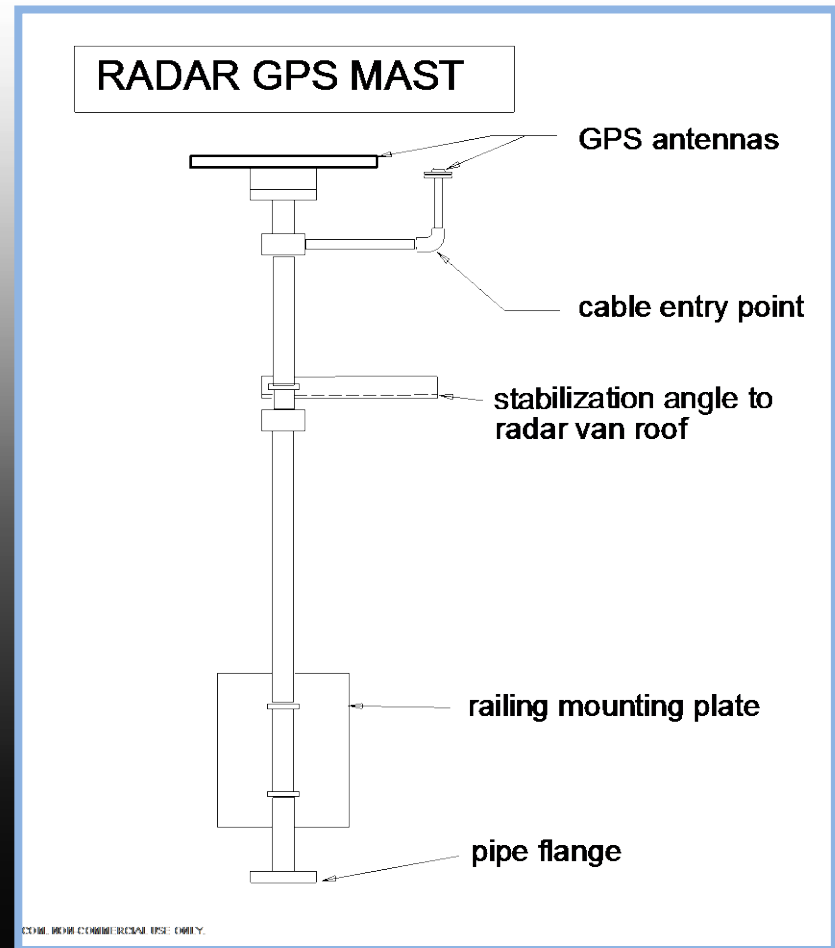
Aerosol Sampler



**Horizon Spirit, Pacific Ocean**



# MAGIC - Design Example



**Horizon Spirit, Pacific Ocean**





# MAGIC - Contracts



APM Terminals  
Dockside Machine  
Rosenblatt  
Hammelman

Horizon Lines  
Native Energy  
RMR  
TTI

**Horizon Spirit, Pacific Ocean**





# MAGIC - Install

## AOT Shipping

- 2 Trucks & Drivers

## APM Terminals

- Clerks
- Gantry Crane Operators
- Gantry Crane Supervisors
- Longshoremen

## Dockside Machine

- Electrician
- 17.5 ton Crane & Operator
- 40 ton Crane & Operator
- Machinists
- Welders & Fire Watch



**Horizon Spirit, Pacific Ocean**



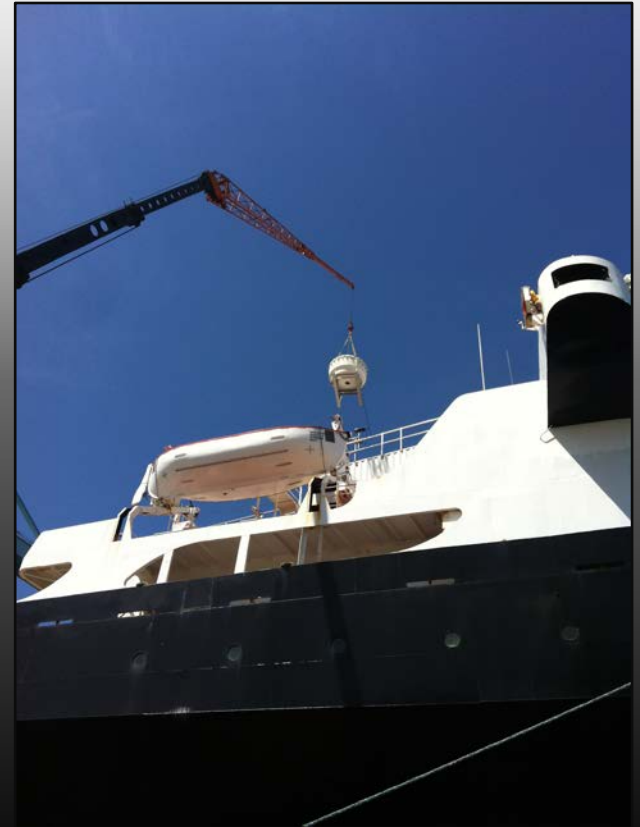
# MAGIC - Shipping to the Port of Los Angeles



**Horizon Spirit, Pacific Ocean**



# MAGIC - Install



**Horizon Spirit, Pacific Ocean**



# MAGIC - Install



**Horizon Spirit, Pacific Ocean**



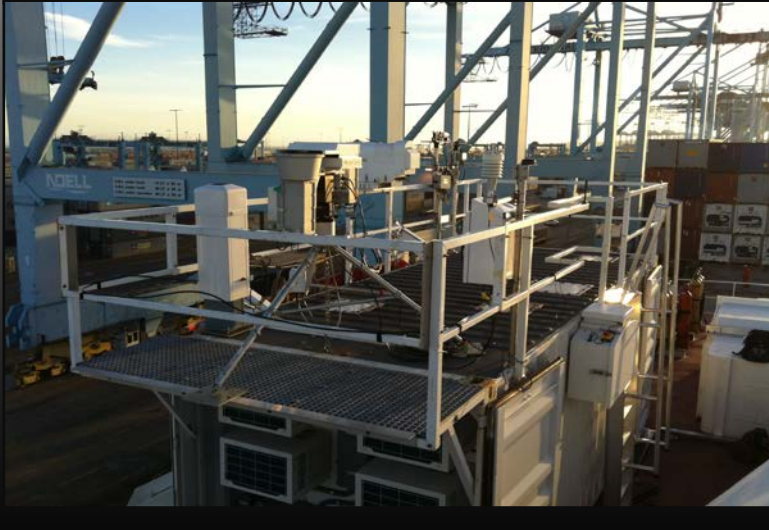
# MAGIC - Install



**Horizon Spirit, Pacific Ocean**



# MAGIC - Operations



**Horizon Spirit, Pacific Ocean**



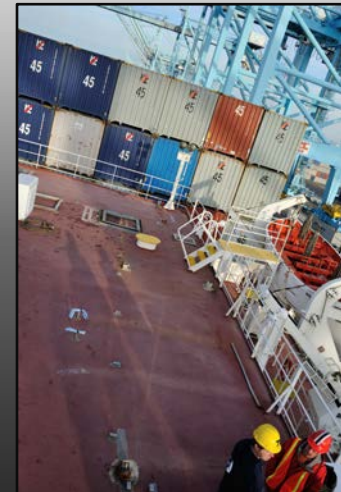


# MAGIC - Uninstall



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SUM (



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Happy Captain Equation



# MAGIC - Dry Dock

Data System Server Repair  
Disk Swap Upgrade  
RPH Pin Replacement  
HSRL Install  
Aerosol Sampler Install  
ASSIST II Calibration Inter-comparison  
MWACR Repair



**Premier Trucking & Dockside Machine**

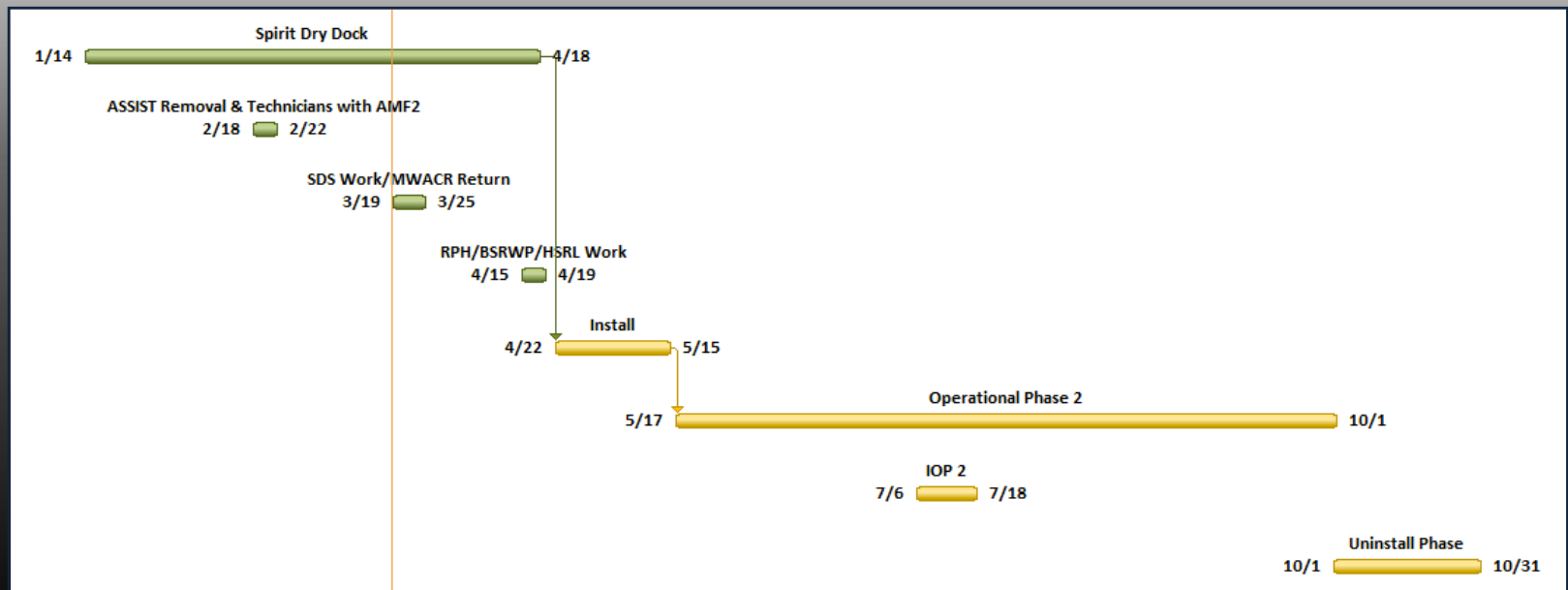


# MAGIC - Timeline

Install Plan A Begins May 9, 2013

IOP July 6-18, 2013

Uninstall Begins October 1, 2013



Premier Trucking & Dockside Machine




- SDS
- DMF
- DQO
- Flexible Structure & Standardization
  - Capture flexibility for further reference
- Data flow – DMF has resources, utilize them, SDS the same




# Updated AMF2 Baseline Instruments

<http://www.arm.gov/sites/amf/amf2>



CART | Home | People | Site Index | Search arm.gov



ARM.gov >> Sites >> Mobile Facilities >> AMF2 Baseline Instruments

## AMF2 Baseline Instruments

Instrumentation for AMF2 is, with a few notable exceptions, the same as used by AMF1. The AMF2 system was designed for marine or shipboard deployments. Generally, except as noted, the AMF2 instruments are marine-capable.

- Identifies instruments either newly acquired or upgraded as a result of Recovery Act funds.

### Available Instrumentation for Land or Ocean-Based Deployments

#### Aerosols

Aerosol Observing System (AOS)  
Capabilities in the AMF2 AOS include:

- Cloud Condensation Nuclei Counter (CCN100 [single column])**  
Measures the concentrations of CCNs as a function of supersaturation.
- Ambient Nephelometer**  
Measures the light scattering coefficient of aerosols at ambient relative humidity.
- f(RH)/Wet Nephelometer (Humidigraph)**  
Measures the light scattering coefficient of aerosols over a range of relative humidities.
- Condensation Particle Counter (CPC) model 3772 (CPC > 10 nm)**  
Determines the concentration of aerosol particles down to an aerodynamic diameter of 10 nm.

#### Instrument Suites

View the list of instruments used at each deployment.

- Gan Island, Maldives
- Los Angeles, California, to Honolulu, Hawaii
- Steamboat Springs, Colorado



#### AMF Information

- Science
- Architecture
- Baseline Instruments
  - AMF1
  - AMF2
- Data
- Operations
- AMF Fact Sheet
- Images
- Contacts

#### AMF Deployments

- Manacapuru, Brazil, 2014
- Oliktok Point, Alaska, 2013
- Los Angeles, California, to Honolulu, Hawaii, 2012
- Cape Cod, Massachusetts, 2012
- Gan Island, Maldives, 2011
- Ganges Valley, India, 2011
- Steamboat Springs, Colorado, 2010
- Graciosa Island, Azores, 2009-2010

