

# DMAS Minutes NADP Spring Meeting 2011

Pensacola, FL, May 3-5

## *Tuesday, May 3*

MOTION (Larson): Approve fall meeting minutes

Second (Jason Karlson)

Motion PASSED

## Digital Raingage Update (Larson)

Current Status

Digital rain gage deployment

- 362 site-years of data (~13 million records)
- 197 sites reporting data
- 57 purchased but not yet installed
- 54 not purchased

Pluvio2 Growing Pains (mainly from USGS purchase)

- Hach made slight changes
- Different power terminal block on some units
- Different Bluetooth adapter
- Occasionally datalogger freezes due to a firmware problem

New Developments

PDA/Datalogger program Version 3 written

- Improved communications between PDA and rain gage
- Not backwards compatible with previous program versions

Data processing software rewritten

- One program handles all sources
- Then screen by a person
- Currently developing an automated pre-screening
- Major step towards electronic field form

Data flow enhancements

- ??? Can input site id, sample start and sample end and get back total precip, daily precip, valid/invalid status, time of last change

PDA Availability

IPAQs currently being used are no longer in production and can no longer be ordered

Short Term Plan:

- Ordered 12 IPAQ model 211
- Have 9-12 used PDAs
- There are a few repairable broken units
- Can purchase a more expensive PDA
- Should increase telemetry where possible
- Some sites can use laptop or netbook

Long Term Plan:

Consumer grade PDAs are being replaced by smart phones and tablets that can typically only be obtained with a data plan

Android devices:

- Has Bluetooth support (not serial port profile, but RFCOMM)
- Cost around \$350

Disadvantages:

- Capacitive screens – can't be used with gloves
- Uncertain harsh weather performance (extreme hot/cold)

### Mapping Discussion (Larson)

From plan approved at exec committee during Fall 2010, PO will need to create 602 maps including PRISM precipitation, and updated bin sizing. Concern map designed are stable before maps are created.

Weatherbee: Summary of bin changes: Used co-located data to estimate recalculation of each constituent. Calculated statistical confidence bins used to draw isopleth maps. In particular, number of bins at lower values was increased. Map changes approved at executive committee.

Larson: Concern for non-linear bins and applying measurement uncertainty for known points to define interpolated points, e.g. spatial uncertainty is ignored.

Suggestion to run a monte carlo simulation and evaluate spatial uncertainty using point subtraction method.

Lear: Saw extremely large error from inverse distance weighted (IDW) interpolation. Advocates using a continuous gradient instead of discrete bins.

Weatherbee: Agrees to the concept of continuous gradients, but cautions to make sure legend reference statistical confidence

Lear: Created CASTNET map using largest 90% percentile from all years data and assigns equal distribution down the scale. Exception for pH, which doesn't begin at zero.

Rogers: Advocates creating a single precipitation surface for NADP and CASTNET. Possibly the NADP modified PRISM surface using data from all NADP networks.

Rhodes: Concern funding could end for PRISM

Morris: Advocates dealing with that problem when it occurs. Worthwhile to save the effort and possible confusion from having two map types.

Lehmann: Consider modifying value of below detection limit results. Different networks use different value (e.g. 2/3, 1/2 of MDL)

MOTION (Larson): Remove labels from printed maps

Second (Roger Claybroke)

Friendly Amendment (G. Weatherbee): No labels on program summary printed maps; online maps will show values and site identification when hovered over; still show different marker for sites not influencing interpolation (e.g. urban sites)

Amendment ACCEPTED  
Dissenting: Kristi Morris, Dave Schmeltz  
Motion PASSED

MOTION (Rogers): Program summary maps continue to use labels for values for current maps, but historically recreated maps will not display labels.  
Second (Gary Conley)  
Motion PASSED

MOTION (Rogers): Use one precipitation surface based on PRISM and modified using all NADP network data similar to what was presented by G. Lear.  
Second (Kristi Morris)  
Friendly Amendment (G. Weatehrbee): Give Chris Lee (?) a digital rain gage.  
Amendment REJECTED/WITHDRAWN  
Friendly Amendment (Rogers): Use 20 km modification radius using IDW and 4 km PRISM grid for 2010 maps.  
Motion PASSED

MOTION (Rogers): Replace current map bins with a continuous color gradient using colors decided by the program office for all maps  
Second (G. Lear)  
Motion PASSED

MOTION (Rogers): Legend and scale for each parameter to be determined by program office with advice from one or more GIS expert that remains static for all years.  
Second (Marty Risch)  
Abstained (G. Weatherbee)  
Motion PASSED

Program office will post 2010 maps to the website to be reviewed by the list serv, and moving forward to maintain printing schedule

### *Wednesday, May 4*

#### **Future of Data Management (LARSON)**

Changes were instigated from the systems audit during the summer of 2010

Current status:

- 5 NADP networks, 3 are very similar
- May have as many as 6 different code bases for data screening and validation
- Some solutions were developed for smaller networks
- Little consistencies between data management
- Significant security issues since the database server is outside the firewall (as many as 5-20 sa login attempts per second)

Goals:

- Minimize redundant and inconsistent algorithms
- Become more flexible and scalable for additional networks
- Move database inside the firewall and provide access to authenticated users outside the firewall

#### Architecture:

- 3 tier programs as much as possible
- Add workflows for certain actions like new site approval, trouble ticket system

#### Extensibility

- Create a core program of shared information (sites, people, relationships, APIs for plug-ins)

#### Accessibility

- Move database behind the firewall
- Expose data tier and business tier endpoints via web services
- Client can consume services on a variety of platforms (Desktop, web, Silverlight, java, mobile applications)

#### Technologies

- .Net 4
- Type of web service (POX, Soap, Restful)
- Workflow from .Net 4
- Managed Extensibility Framework (MEF)

#### First Steps

- Create core program (Goal: next 12 months)
- Create Electronic Field Form (Goal: next 6 months)
- Develop Plug-In APIs for select clients
- Evaluate feasibility (web service performance, utility of WF, MEF, etc.)

### **Hosting AIRMoN Dry Deposition Data**

AIRMoN dry network is no longer running and requested historical data to be hosted by NADP.

Suggestion to develop a 'Significant Atmospheric Deposition Data' web page with links to other programs and networks, and hosting some legacy datasets (e.g. AIRMoN dry, State of Pennsylvania historical data).

Concerns datasets must be suitably documented and suitable for use.

The AIRMoN dry dataset has some issues that require reformatting (e.g. date format, separator fields)

MOTION (Mishoe): Recommend to reformat minor issues with AIRMoN dry data files and host on the NADP database and website as described by D. Gay. Also, develop and standard set of guidelines for additional data sets requesting hosting in the future including as many relevant documentation files as available and referenced journal articles describing methodologies if possible.

Second (Tom Bergerhouse)

Motion PASSED