Specialized Dispersion and Meteorology Support

Walt Schalk
Air Resources Laboratory

Air Resources Laboratory Review
Tuesday, May 3 - 5, 2011
ARL’s expertise and services are sought out

Dispersion is cornerstone to services

Customer relationship pairs
- Their specific & unique needs
- ARL expertise and experience

ARL Benefit
- Feedback to research
Feedback to Research

ARL Services

Increased expertise

Lessons Learned, Data, Experience

ARL Dispersion Research

Expanded applications

Improved models

Improved tools
Feedback to Research

ARL Services

Increased expertise

Improved models

Lessons Learned, Data, Experience

Improved tools

Expanded applications
Customers

Primary

Others
Services Provide to DOE

Meteorological Data Collection

Consequence Assessment

Meteorological Data Analysis

Mesoscale Weather Forecast modeling

Meteorological Surveillance & Forecasting

Specialized Experimental Support

Air Quality Modeling – permitting
Meteorological Data Collection
Consequence Assessment
Meteorological Data Analysis
Mesoscale Weather Forecast Modeling
Meteorological Surveillance & Forecasting

NWS Power Grid

Air Resources Laboratory

May 3, 2011

Forecasters: K. Smith

Today

- Mostly cloudy and breezy. North winds are 16 to 25 mph.
- Highs are in the upper 70s.
- Lows are in the upper 50s.
- Humidities are in the low 50s.
- Dry lightning probability is dry.

903 MDT

908 MDT

913 MDT

918 MDT

923 MDT

928 MDT

Sunday

- Partly cloudy with north winds at 15 to 20 mph.
- Low temperature is 56.
- High temperature is 69.
- Humidity is 40.
- Dry lightning probability is dry.

Monday

- Mostly sunny with north winds at 10 to 15 mph.
- Low temperature is 54.
- High temperature is 73.
- Humidity is 40.
- Dry lightning probability is dry.

Tuesday

- Mostly cloudy with north winds at 15 to 20 mph.
- Low temperature is 56.
- High temperature is 69.
- Humidity is 40.
- Dry lightning probability is dry.

Wednesday

- Mostly cloudy with west winds at 15 to 20 mph.
- Low temperature is 54.
- High temperature is 73.
- Humidity is 40.
- Dry lightning probability is dry.

Thursday

- Mostly cloudy with west winds at 15 to 20 mph.
- Low temperature is 54.
- High temperature is 73.
- Humidity is 40.
- Dry lightning probability is dry.

Friday

- Mostly sunny with west winds at 10 to 15 mph.
- Low temperature is 54.
- High temperature is 73.
- Humidity is 40.
- Dry lightning probability is dry.

Saturday

- Mostly sunny with south winds at 10 to 15 mph.
- Low temperature is 54.
- High temperature is 73.
- Humidity is 40.
- Dry lightning probability is dry.

Weather Forecast:

- High temperatures are 69 at 6 PM.
- Low temperatures are 56 at 6 AM.
- Humidity is 50.
- Dry lightning probability is dry.

Additional Information:

- For the Nevada National Security Site:
- Weather conditions are monitored.
- Low temperature is 54.
- High temperature is 73.
- Humidity is 40.
- Dry lightning probability is dry.

Source: National Weather Service

May 3, 2011

Air Resources Laboratory
Specialized Experimental Support
Air Quality Modeling

Permitting

AERMOD
Specialized HYSPLIT Assessments
Specialized HYSPLIT assessments

Japan

- Flow Patterns
- Time of arrival
- Material spread
Specialized HYSPLIT assessments

Deepwater Horizon

- Odor Assessment
- Trajectories
- Dioxin
Feedback to Research

ARL Services

Lessons Learned, Data, Experience

ARL Dispersion Research

Increased expertise

Expanded applications

Improved models

Improved tools
Feedback to ARL and NOAA R&D

HYPLIT improvements
- improved radiological event codes

READY improvements
- Flash (web) based map interactive display

Mesoscale Modeling
- Mesonet data being used to verify WRF and HRRR model forecasts

Resources
- large areas for studies – Field Labs
**Future Direction**

*Continue current Services*

- DOE
- specialized HYSPLIT assessments

*Continue to take lessons learned, data, needs and feed them back into ARL and NOAA R&D*

*Look to new areas of research opportunities:*

- NOAA/DOE Renewable Energy activities
- Fine scale wind analyses and predictions
- improve mesoscale models for the desert SW
Thank you!