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Delivering science and technology
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LANL's Weather Machine and Comparison of KLAM with Nearby Wind Data



David Bruggeman

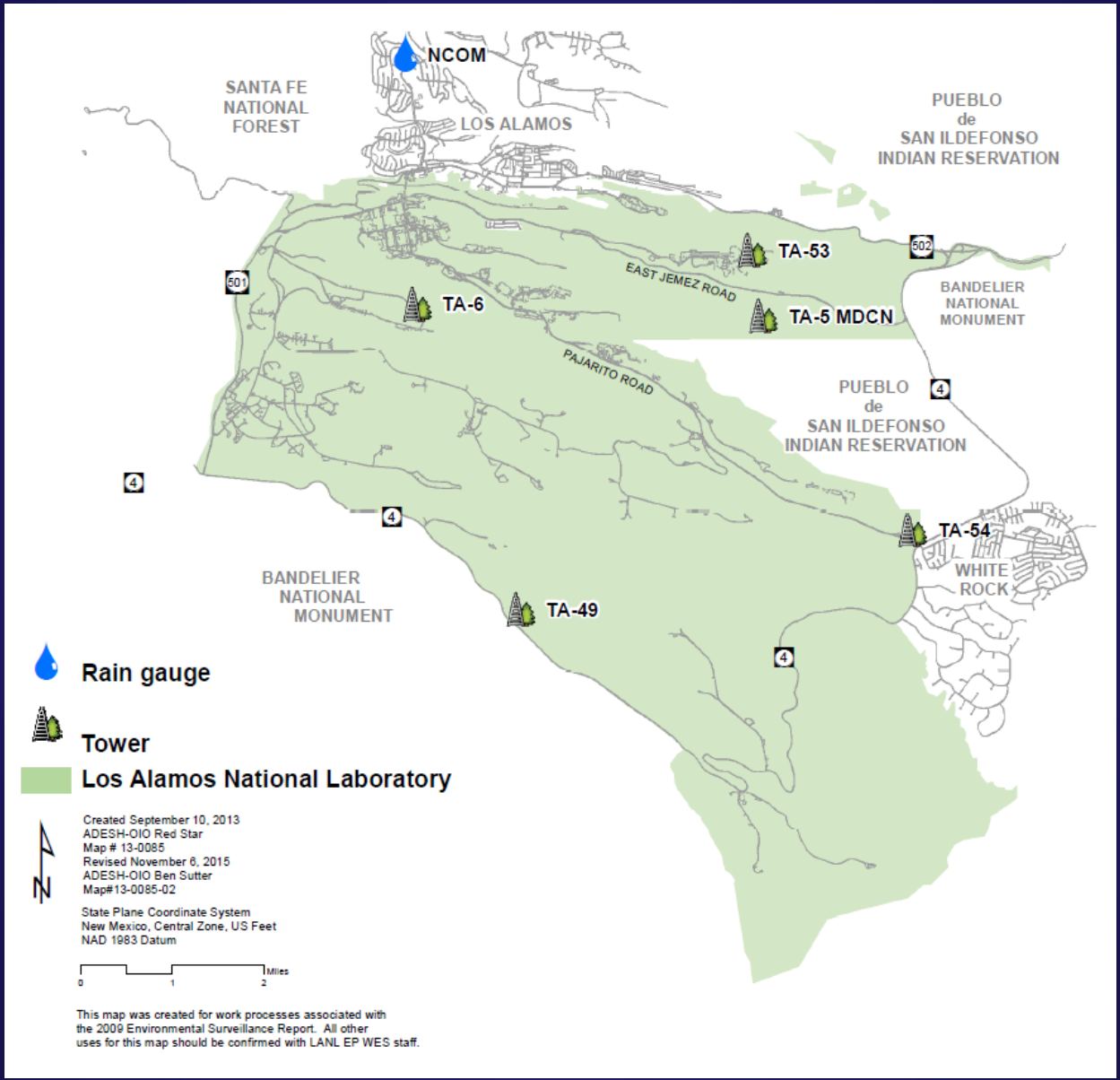
April 17 2016

Weather Monitoring

- **Meteorological monitoring in Los Alamos since 1910**
- **Five meteorology towers and a SODAR across LANL**
- **Data can be accessed on the Weather Machine**
 - <http://environweb.lanl.gov/weathermachine>



Meteorological Monitoring Sites



Weather Machine


Lab Home | Phone | Search Date: Thursday, April 7, 2016 | Time: 14:47 MDT (21:47 UTC) | [Time Note](#) »

The Weather Machine

LOS ALAMOS NATIONAL LABORATORY

LANL Observations ▾ Regional/U.S. Observations ▾ Forecast Products ▾ LANL Climatology ▾ Data Requests ▾

LANL Welcome... Today's Weather Almanac »



Welcome to the Weather Machine! The Weather Machine provides access to the latest meteorological observations, climatological information, and weather forecast products for the Los Alamos area. Questions/Comments? [Contact us](#) »

Hover over image for caption...

NATIONAL WEATHER SERVICE - LOS ALAMOS FORECAST

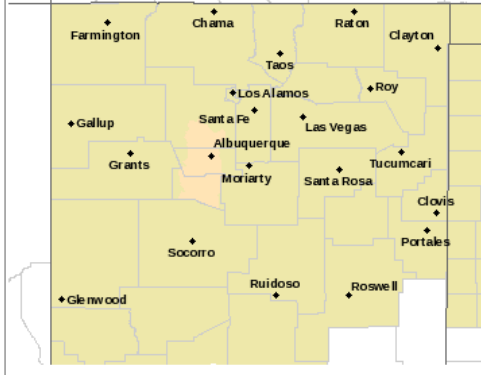
For the most current and accurate weather information including forecasts, watches, warnings and advisories for the Los Alamos area, please go to the [National Weather Service Site](#)

LANL Current Conditions... More Data »

	TA6	TA49	TA53	TA54
Tower (tower):				
Date (mm/dd):	4/7	4/7	4/7	4/7
Time (hh:mm):	13:30	13:30	13:30	13:30
Temp (°F):	67.5	68.7	68.0	70.5
Wind Chill (°F):	67.5	68.7	68.0	70.5
Dew Point (°F):	7.5	10.6	7.0	7.9
RH (%):	9	10	8	8
Speed (mph):	9.6	9.8	9.2	8.1
Dir (from):	S	SSW	S	S
Precip Today (in):	0.00	0.00	0.00	0.00

NOTE: All times are reported in MST.

Regional Weather Forecast Map...

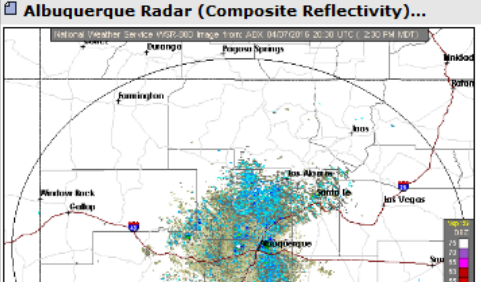


High Wind Warnings Red Flag Warnings Wind Advisory High Wind Watch Fire Weather Watch Hazardous Weather Outlook

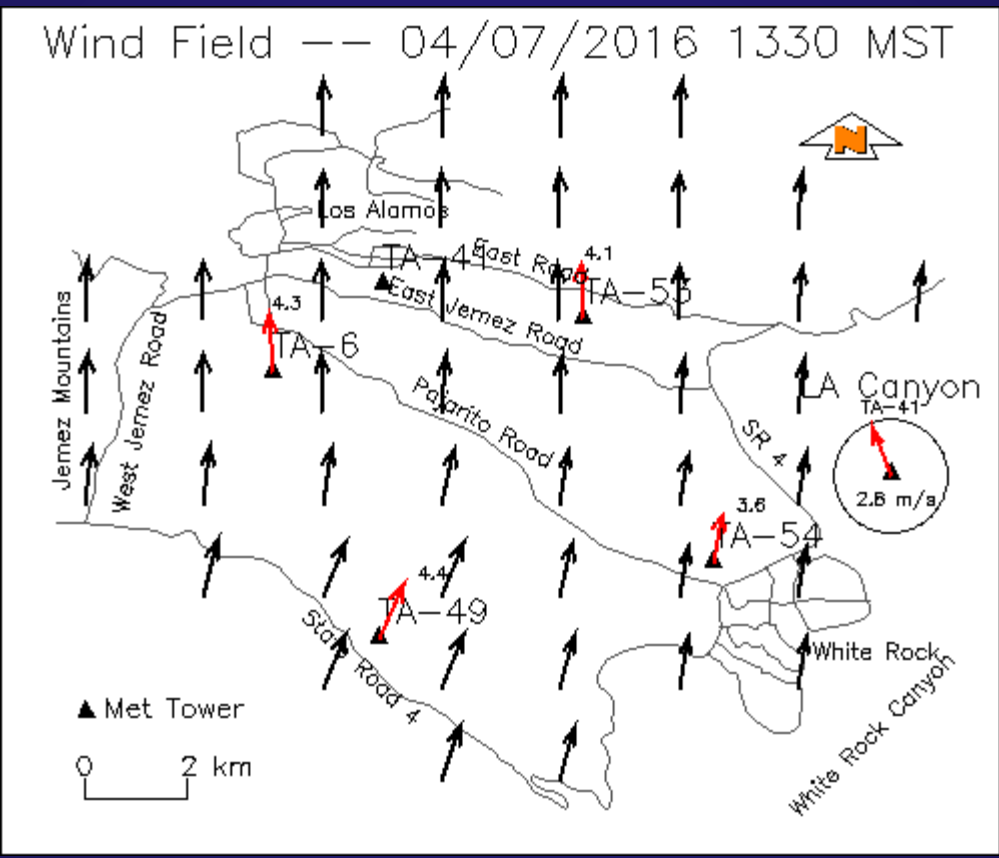
Weather Related Links...

- Los Alamos 7-Day Forecast
- Zone Forecast for Jemez Mountains
- Zone Forecast for Lower Chama Valley
- Zone Forecast for Santa Fe Metro Area
- Hazardous Weather Outlook
- NOAA Albuquerque Forecast Office

Albuquerque Radar (Composite Reflectivity)...



Weather Machine – Wind Vector Field



Weather Machine – Raw Data Request

Lab Home | Phone | Search
Date: Friday, April 8, 2016 | Time: 10:39 MDT (17:39 UTC) | [Time Note >](#)

The Weather Machine

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Data Requests ▾


Data Request > Raw Data

The table below contains a list of active and inactive stations. Click on the station name to get detailed information about a station location. Select "15-minute" or "24-hour" and the "Continue >" button to view a list of variables available to download for a particular station. This will currently only let you download up to 3 months worth of 15 minute data at a time.

Please refer to the [Meteorological Monitoring Plan](#) for a complete description of the meteorological tower network and available data.

Active Station List:			Inactive Station List:		
Tower Name	15-Minute	24-Hour	Tower Name	15-Minute	24-Hour
TA-5/MDCN	<input checked="" type="radio"/>	<input type="radio"/>	TA-16	<input type="radio"/>	<input type="radio"/>
TA-6	<input type="radio"/>	<input type="radio"/>	TA-41	<input type="radio"/>	<input type="radio"/>
TA-49	<input type="radio"/>	<input type="radio"/>	TA-50	<input type="radio"/>	<input type="radio"/>
TA-53	<input type="radio"/>	<input type="radio"/>	TA-59	<input type="radio"/>	<input type="radio"/>
TA-54	<input type="radio"/>	<input type="radio"/>	TA-74	<input type="radio"/>	<input type="radio"/>
North Community	<input type="radio"/>	<input type="radio"/>	East Gate	<input type="radio"/>	<input type="radio"/>
Los Alamos	<input type="radio"/>	<input type="radio"/>	Pajarito Mtn	<input type="radio"/>	<input type="radio"/>
White Rock	<input type="radio"/>	<input type="radio"/>			

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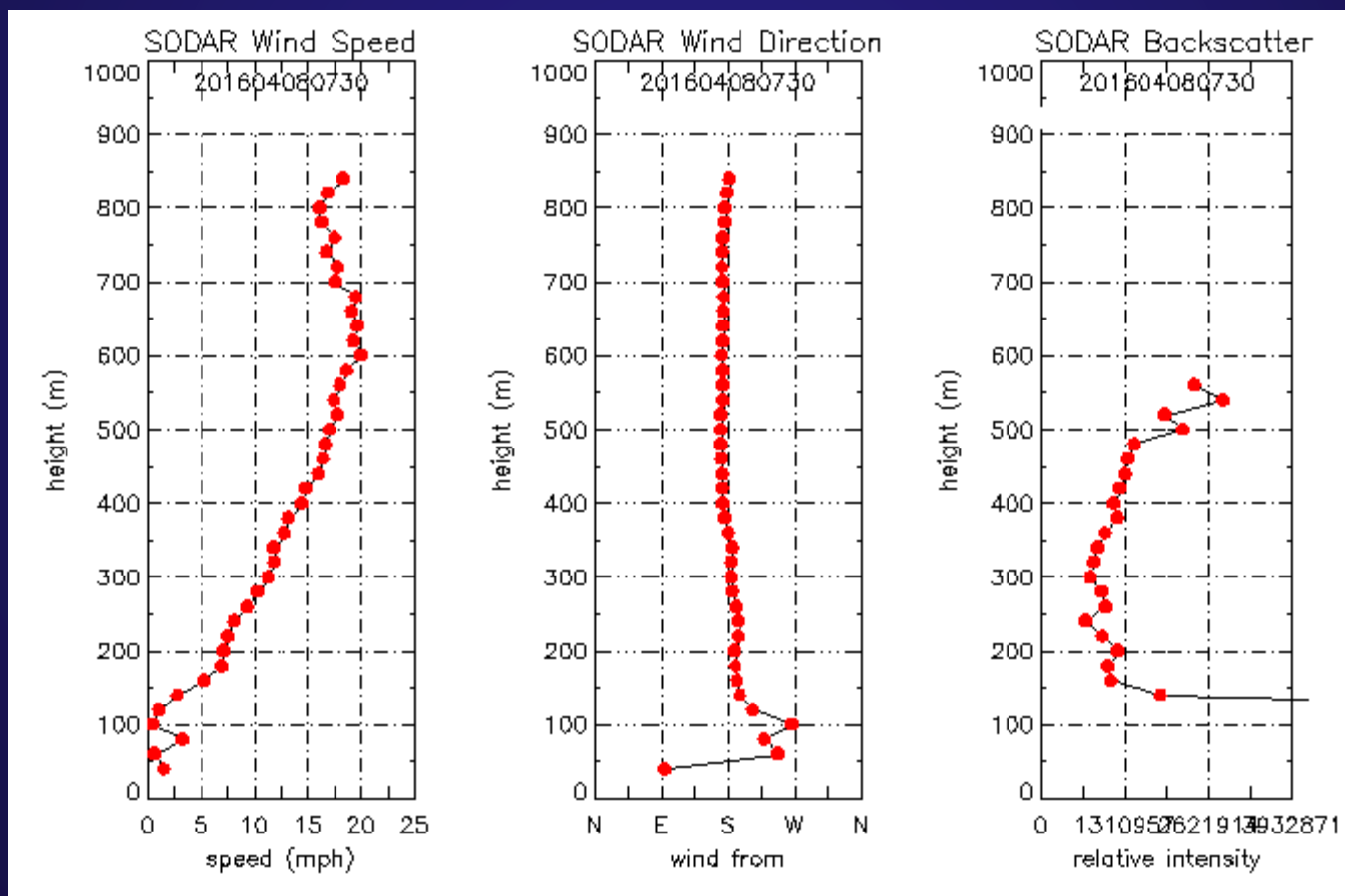
EST. 1943

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 505-667-7079 | weather@lanl.gov | webmaster:weather@lanl.gov

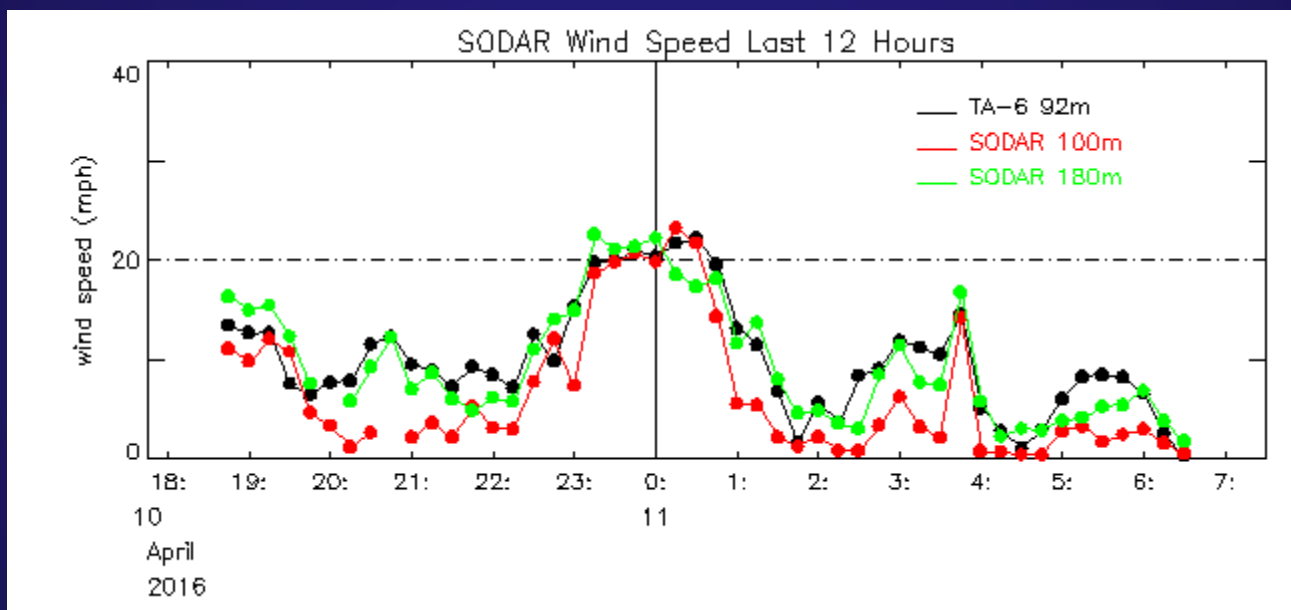
[Weather Home](#) | [Lab Home](#)

Weather Machine – SODAR

- Uses sound waves to measure wind and temperature up to ~ 1 km



Weather Machine - SODAR



Comparison of KLAM and TA-53

TA-53 & KLAM Locations



- TA-53 ~ 4,000 ft (1.2 km) away from KLAM



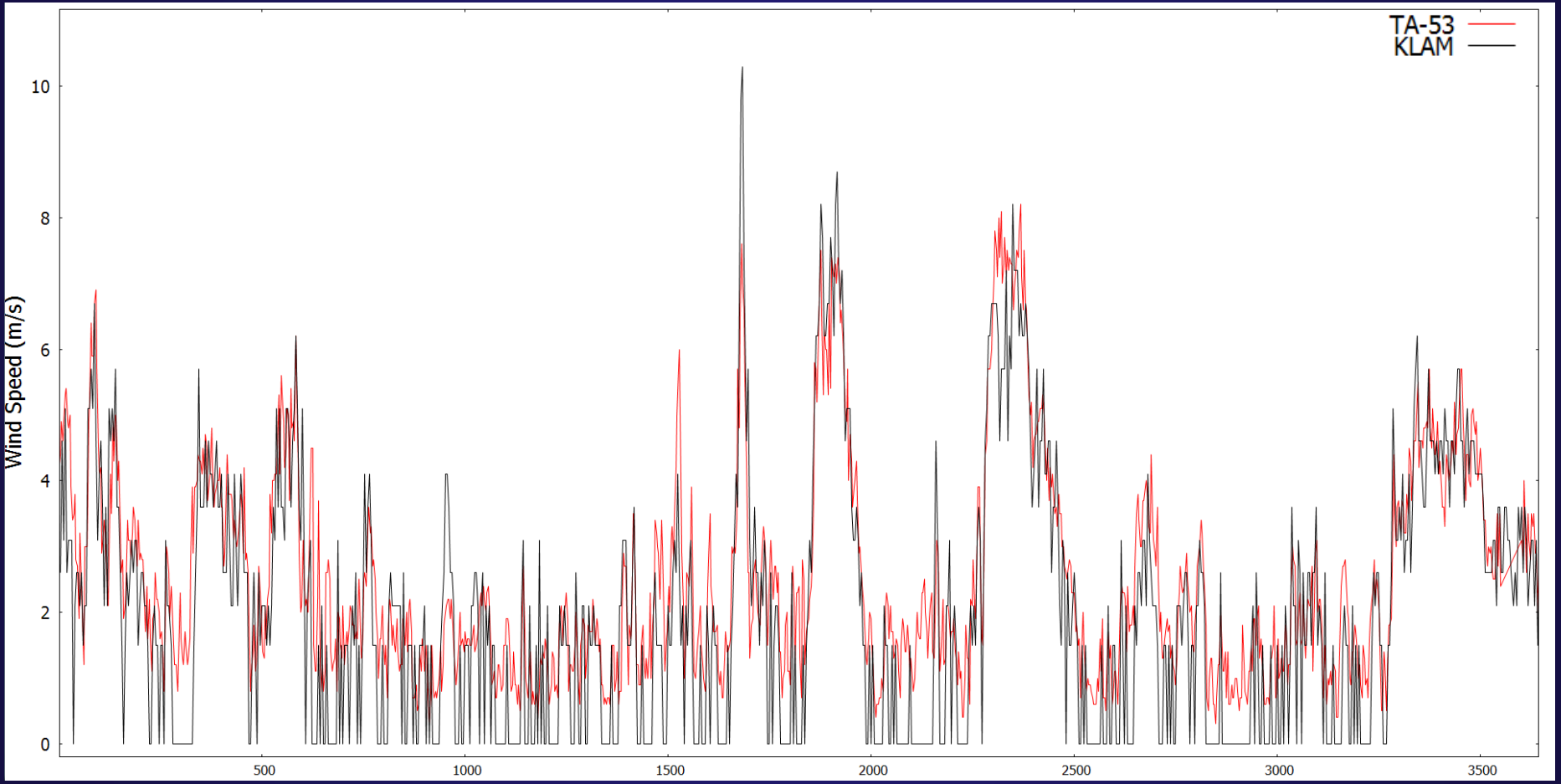
Differences Between TA-53 and KLAM

Variables	TA-53	KLAM
Temperature near surface	✓	✓
Temperature at upper levels	✓	✗
High/low temperatures	✓	✓
Dew point	✓	✓
Relative humidity	✓	✓
Wind speed/direction	✓	✓
Vertical wind speed	✓	✗
Wind gust	✓	✓
Wind data at upper levels	✓	✗
Cloud layer heights	✗	✓
Precipitation 1,3,6,24 hours	✓✗	✓
Visibility	✗	✓
Incoming shortwave radiation	✓	✗

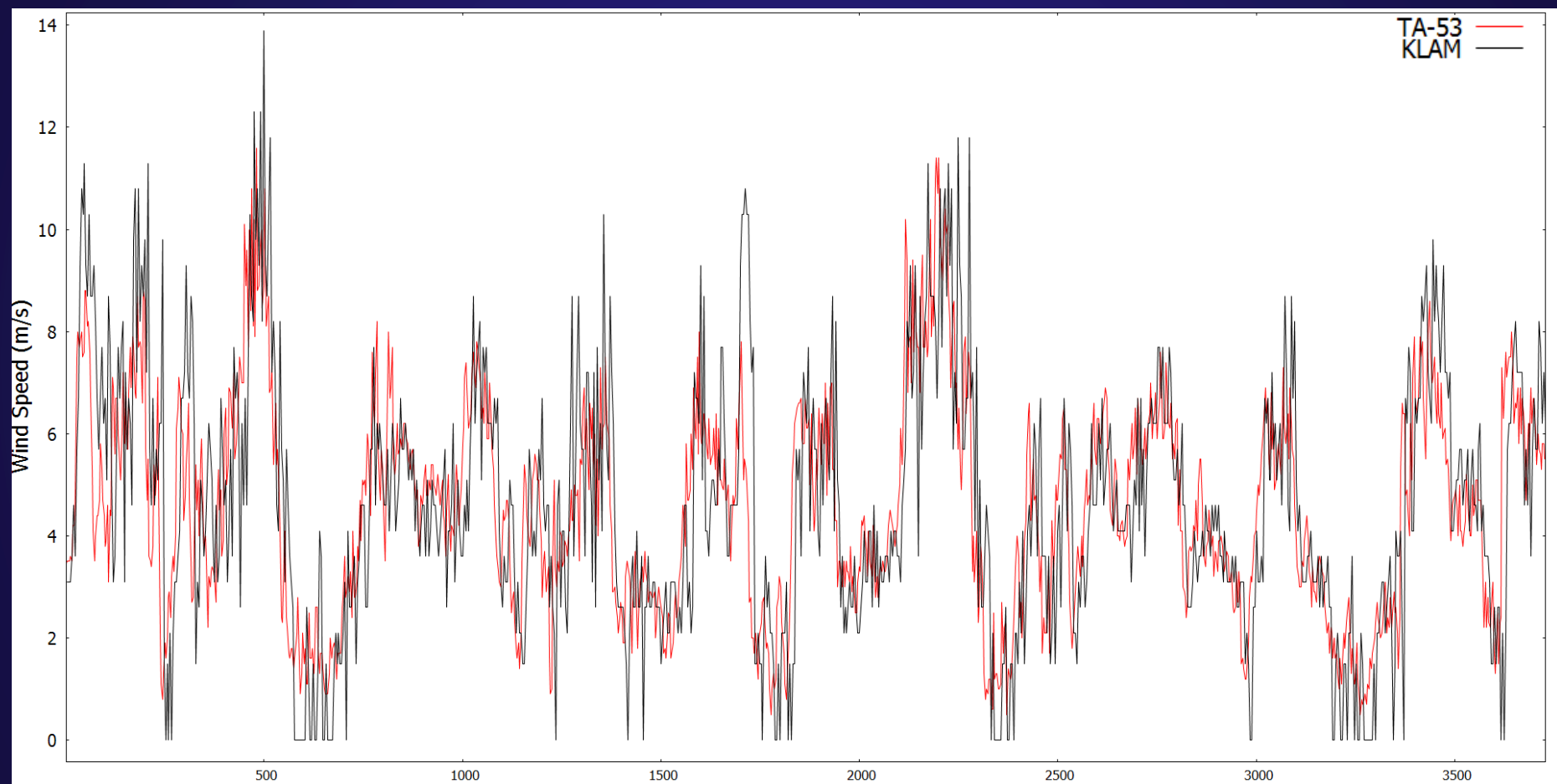
Differences Between TA-53 and KLAM

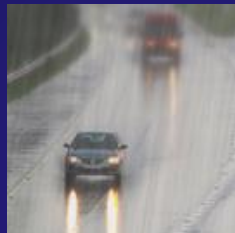
	TA-53	KLAM
Anemometer	Propeller 	3-cup 
Elevation	2130 m	2186 m
Anemometer height	11.5 m (+2 upper levels)	10 m
Sampling period	15-min (0,15,30,45)	20-min (15,35,55)
Precision	0.1 m/s < 0.4 m/s = 0 m/s	~0.5 m/s (1.5,2.1,2.6,3.1 etc...) < 1.5 m/s = 0 m/s

KLAM vs. TA-53 Wind Speeds: January



KLAM vs. TA-53 Wind Speeds: April





Los Alamos Forecasting

