



463 New Karner Road  
Albany, NY 12205

e-mail: pthienpont@awstruepower.com  
Tel: (518) 213-0044  
Fax: (518) 213-0045

---

**TO: J.D. Lowery, Renewable Energy Program Manager**  
**FROM: Paul Thienpont, Meteorology Analyst**  
**CC: Ignacio Carballo, Senior Project Manager**  
**DATE: August 23, 2011**  
**RE: June 2011 Arkansas Wind Speed and Temperature Summary**

As part of its statewide wind resource monitoring campaign, the Arkansas Energy Office has asked AWS Truepower to provide additional information beyond the parameters contained in our standard monthly wind resource report. These include the following:

- The observed wind speeds at each monitoring height expressed in miles per hour (mph) instead of the standard meter per second (mps) format;
- The monitoring height expressed in feet (ft) instead of the standard meter (m) format;
- The projected 80 m (262.5 ft) wind speed at each tall tower site using the observations from other monitoring heights;
- The observed temperature at each monitoring height expressed in degrees Fahrenheit (°F) instead of the standard Celsius (°C) format; and
- The wind speed departure from normal for each month using regional National Weather Service airport station data.

This memorandum provides the results for the month of July 2011 for the first four listed items. The table below lists the observed site-specific mean wind speeds at each monitoring height, as well as the projected 80 m (262.5 ft) mean wind speed. The projected wind speeds ranged from 8.01 mph at Area 3 Marrel (Mast AR1134) to 10.51 mph at Area 4 Carthage (MastAR1050). The remaining wind resource statistics can be found within the report itself.

	Area 2 Stuttgart (Mast AR1004)		Area 4 Carthage (Mast AR1050)		Area 5 Texarkana (Mast AR1121)		Area 3 Marrel (Mast AR1134)		Area 1 Lepanto (Mast AR1138)	
Monitoring Level	Height (ft)	Speed (mph)	Height (ft)	Speed (mph)	Height (ft)	Speed (mph)	Height (ft)	Speed (mph)	Height (ft)	Speed (mph)
Top	232.3	8.81	314.3	11.39	281.5	9.91	314.3	8.68	248.7	9.62
Middle	199.5	8.25	248.7	10.29	199.5	8.75	248.7	7.92	173.2	8.63
Bottom	166.7	7.7	199.5	9.35	107.6	7.14	183.1	7.14	117.5	7.7
<i>262.5 ft Projected Speed</i>	9.33		10.51		9.64		8.01		9.8	
Temp (°F)	Height (ft)	Temp (°F)	Height (ft)	Temp (°F)	Height (ft)	Temp (°F)	Height (ft)	Temp (°F)	Height (ft)	Temp (°F)
	229.7	84	311.7	84	278.9	86.4	311.7	83.5	246.1	84
	164	84	196.9	84	114.8	86.2	180.4	83.5	180.4	83.8

### **Long-Term Outlook:**

AWS Truepower has compared the observed July 2011 wind speeds from six regional National Weather Service stations to each station's long-term July average speed to estimate how representative the wind speeds observed during the month were of the long-term July wind conditions. The six stations included Hot Springs, Jonesboro, Little Rock, Pine Bluff, Texarkana, and West Memphis. With the exception of West Memphis, whose wind speeds were relatively low compared to the other stations and which exhibited a significant departure from normal, the average departure from normal was approximately 4.9%. This suggests that the observed July 2011 wind speeds throughout most of the State of Arkansas were generally above normal.



windNavigator  
Campaign Management Report

**Arkansas Tall Tower Program**  
**July 2011**

Submitted To:  
Arkansas Economic Development Commission

Submitted By:  
[AWS Truepower, LLC](#)  
Albany - Barcelona - Bangalore  
p: +1.518.213.0044  
e: [info@awstruepower.com](mailto:info@awstruepower.com)  
i: [www.awstruepower.com](http://www.awstruepower.com)

Copyright 2011 AWS Truepower, LLC. All rights reserved.  
ID NUMBER: 39318

## Table of Contents

Executive Summary.....	2
Project Characteristics.....	2
A. Mast AR1004.....	3
B. Mast AR1050.....	5
C. Mast AR1121.....	7
D. Mast AR1134.....	9
E. Mast AR1138.....	11

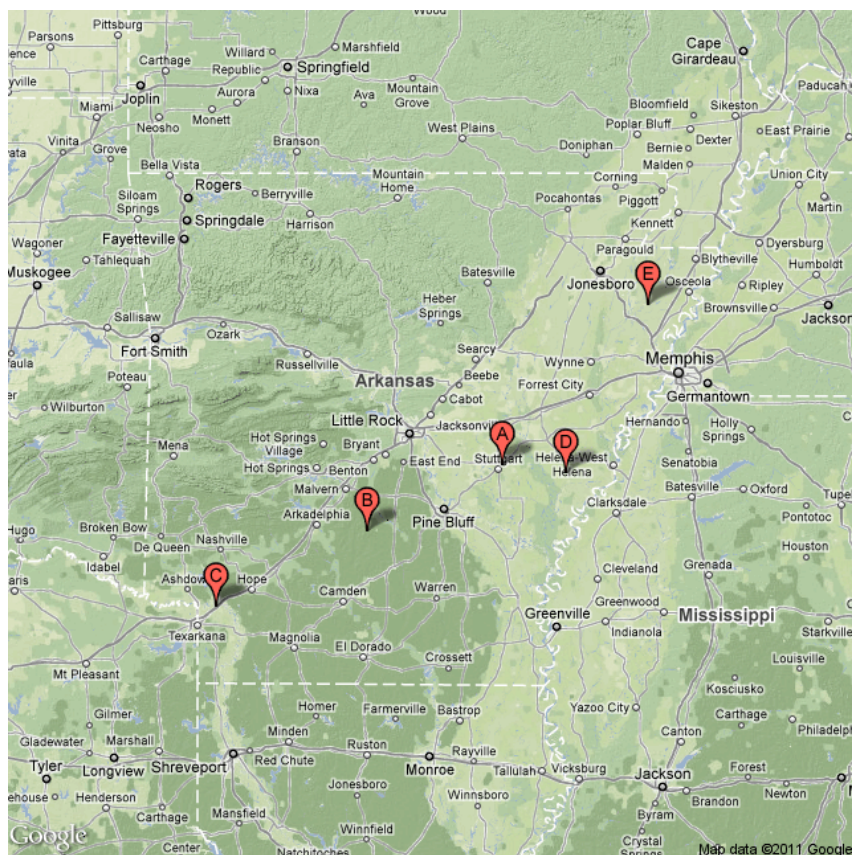
## Executive Summary

This report summarizes the July 2011 wind resource of 5 masts in the Arkansas Tall Tower Program project area. A map of the project area and the location of each project mast is presented below.

The 80-m projected wind speeds for July 2011 range from 3.58 m/s (Mast AR1134) to 4.70 m/s (Mast AR1050). Data recovery is 100.0% for all masts (Mast AR1004, Mast AR1050, Mast AR1121, Mast AR1134, Mast AR1138). The following pages provide a more in-depth summary of each mast.

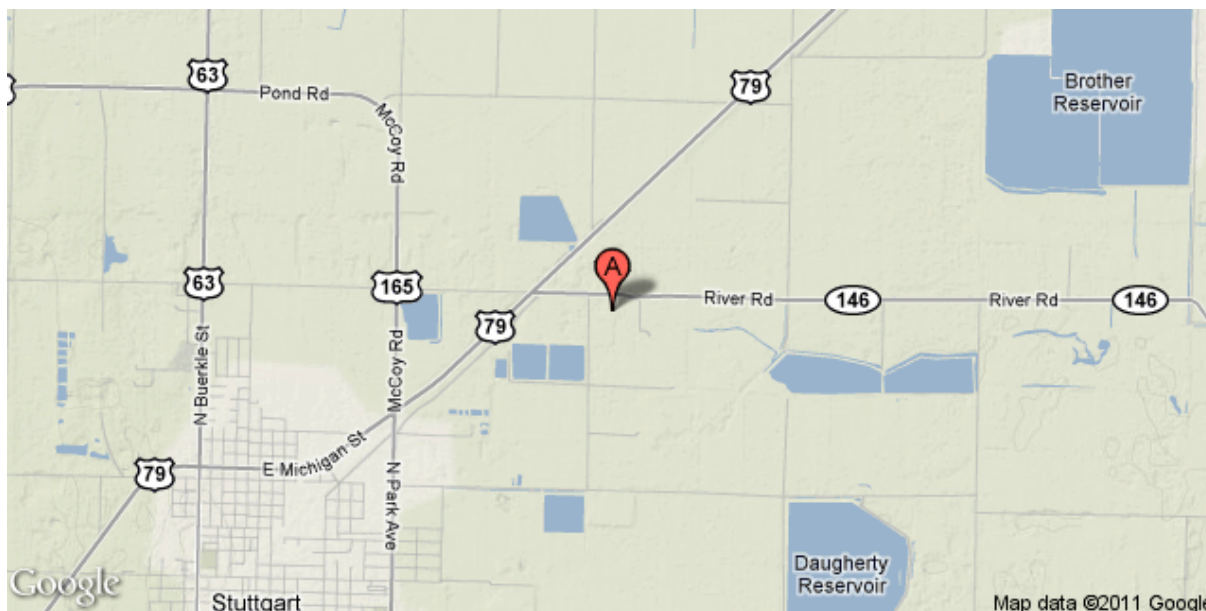
## Project Characteristics

Latitude: 34.5211      Number of Masts: 5  
 Longitude: -91.5207



Label	Mast	Period of Record
A	AR1004	2011-05-05 - 2011-08-01
B	AR1050	2011-03-23 - 2011-08-01
C	AR1121	2011-03-21 - 2011-08-01
D	AR1134	2011-04-01 - 2011-08-01
E	AR1138	2011-03-27 - 2011-08-01

# A. Mast AR1004, Arkansas Tall Tower Program Monthly Report



Elevation (m)	Latitude	Longitude
65	34.52111	-91.52027

Anemometer (m)	Wind Speed (m/s)	TI
70.8	3.94	0.11
60.8	3.69	0.12
50.8	3.44	0.14

Summary Statistics	
Wind Power Density (W/m <sup>2</sup> )	54.8
70.8 m / 60.8 m Shear	0.479
Mean Temperature (°C)	28.9
80 m Projected Wind Speed (m/s)	4.17
Data Recovery (%)	100.0

## Sensor Status

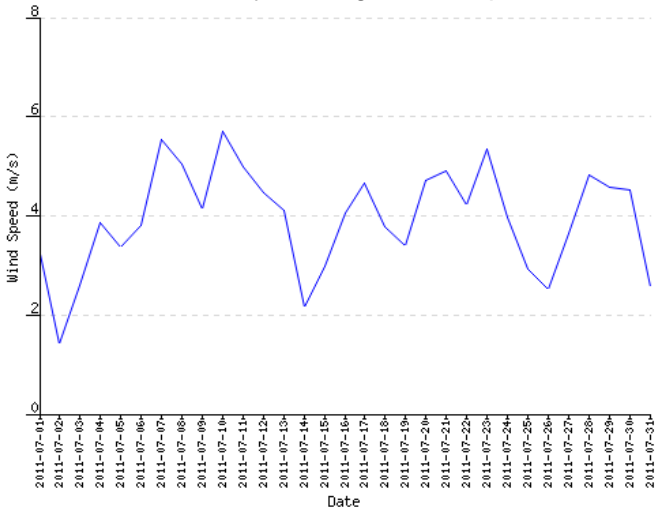
Wind Speed Sensors
Ch 1 (70.8 m) : Operational
Ch 2 (70.8 m) : Operational
Ch 3 (60.8 m) : Operational
Ch 4 (60.8 m) : Operational
Ch 5 (50.8 m) : Operational
Ch 6 (50.8 m) : Operational

Wind Direction Sensors
Ch 7 (70.8 m) : Operational
Ch 8 (60.8 m) : Operational
Ch 9 (50.8 m) : Operational

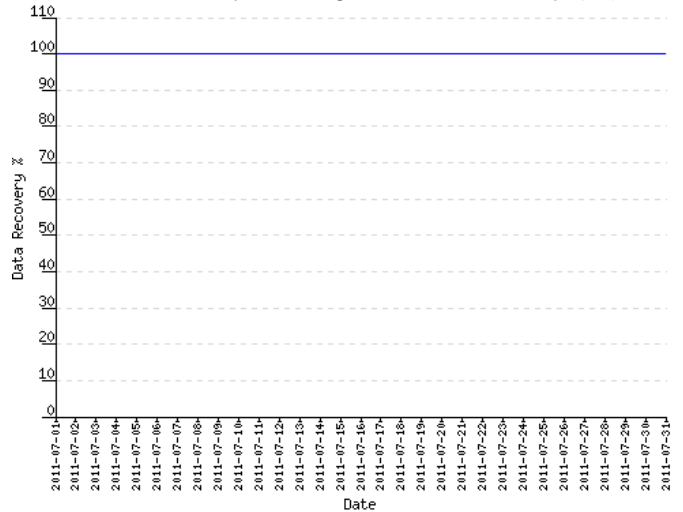
Other
Ch 10 (70.0 m TEMP) : Operational
Ch 11 (50.0 m TEMP) : Operational

# Wind Speed Graphics

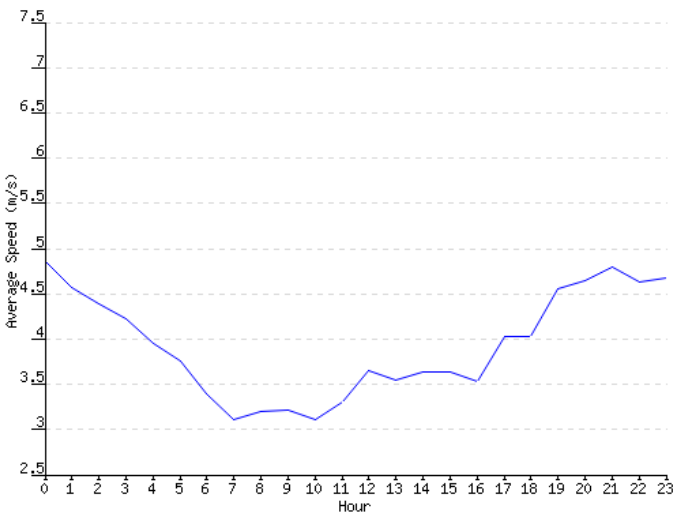
70.8 m Daily Average Wind Speeds



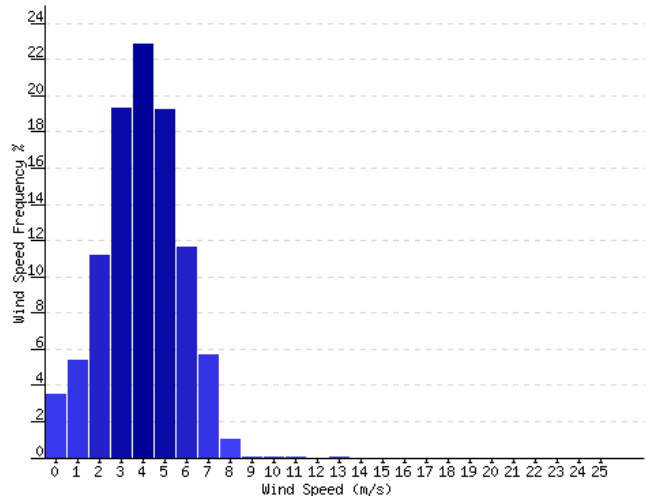
70.8 m Daily Average Data Recovery (%)



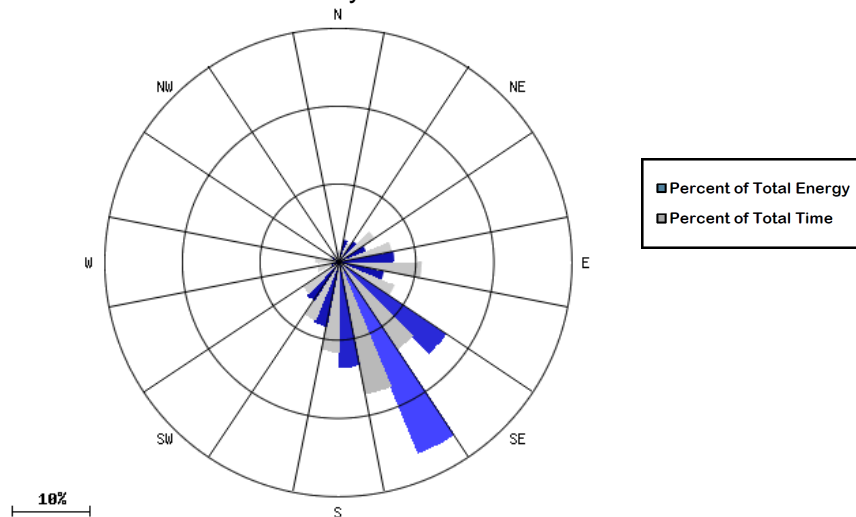
70.8 m Hourly Average Wind Speed



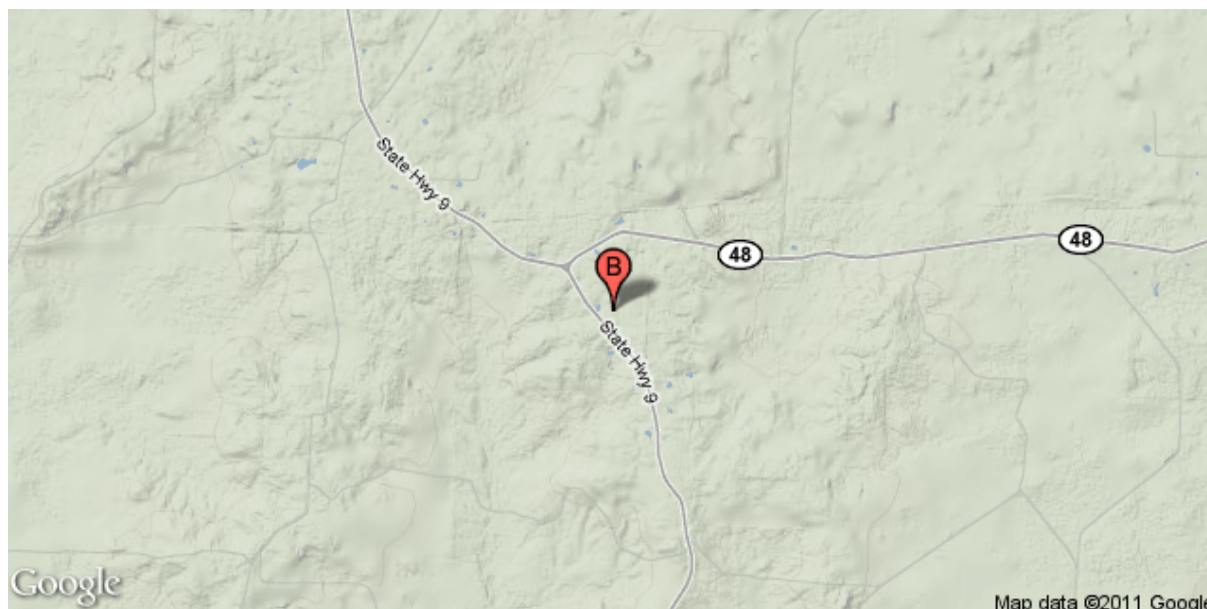
70.8 m Wind Speed Frequency Distribution



70.8 m Monthly Wind Rose



## B. Mast AR1050, Arkansas Tall Tower Program Monthly Report



Elevation (m)	Latitude	Longitude
144	34.06752	-92.63160

Anemometer (m)	Wind Speed (m/s)	TI
95.8	5.09	0.09
75.8	4.60	0.10
60.8	4.18	0.11

Summary Statistics	
Wind Power Density (W/m <sup>2</sup> )	119.4
95.8 m / 75.8 m Shear	0.440
Mean Temperature (°C)	28.9
80 m Projected Wind Speed (m/s)	4.70
Data Recovery (%)	100.0

## Sensor Status

### Wind Speed Sensors

Ch 1 (95.8 m) : Operational  
 Ch 2 (95.8 m) : Operational  
 Ch 3 (75.8 m) : Operational  
 Ch 4 (75.8 m) : Operational  
 Ch 5 (60.8 m) : Operational  
 Ch 6 (60.8 m) : Operational

### Wind Direction Sensors

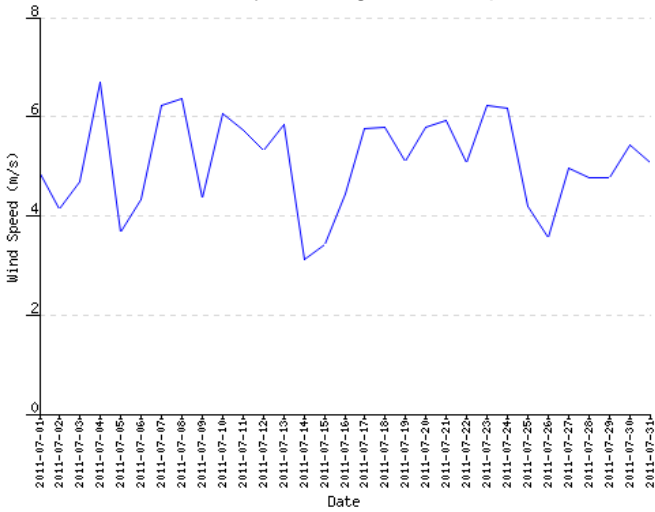
Ch 7 (95.8 m) : Operational  
 Ch 8 (75.8 m) : Operational  
 Ch 9 (60.8 m) : Operational

### Other

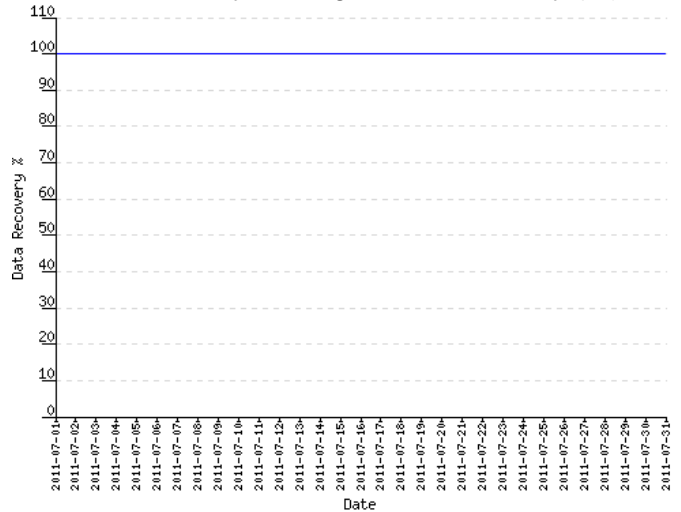
Ch 10 (95.0 m TEMP) : Operational  
 Ch 11 (60.0 m TEMP) : Operational

# Wind Speed Graphics

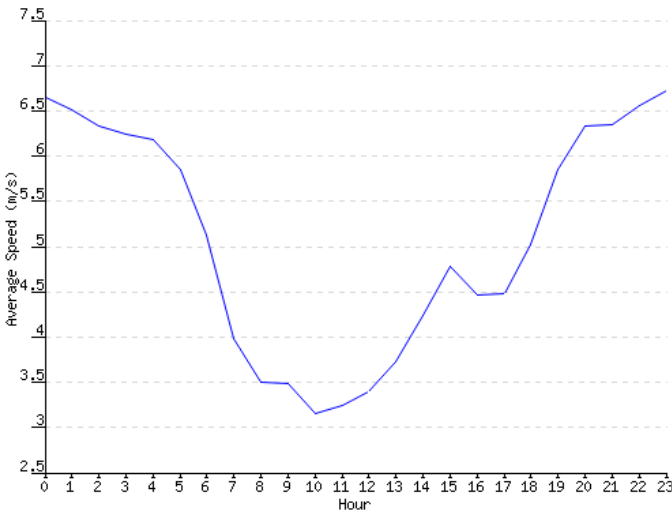
95.8 m Daily Average Wind Speeds



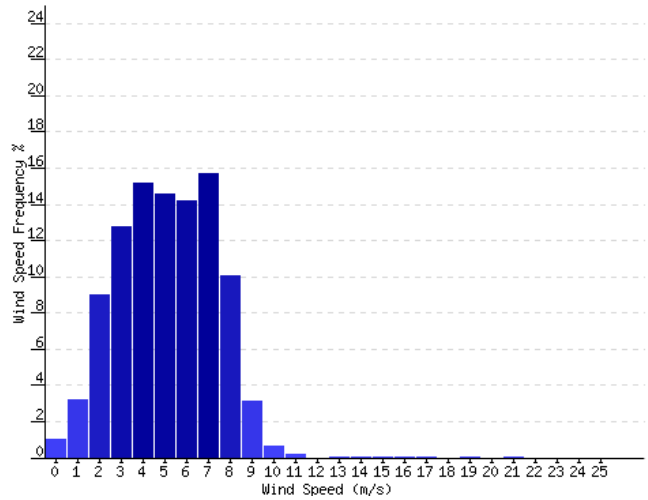
95.8 m Daily Average Data Recovery (%)



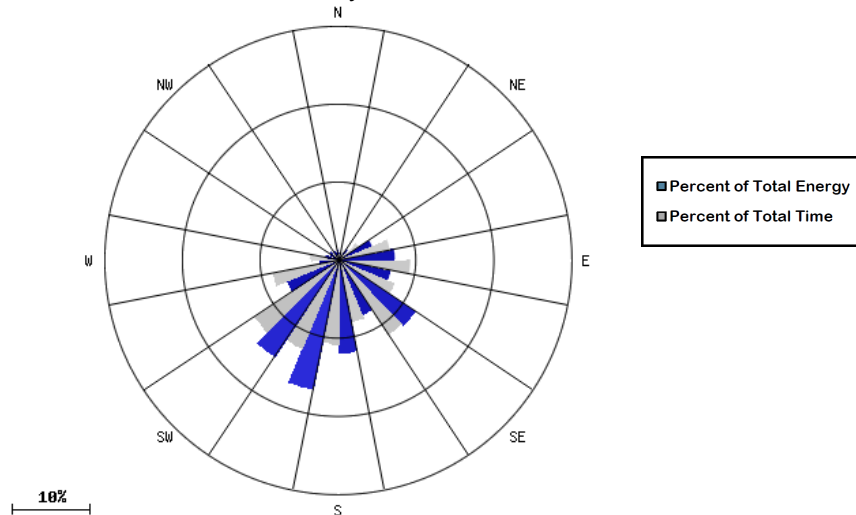
95.8 m Hourly Average Wind Speed



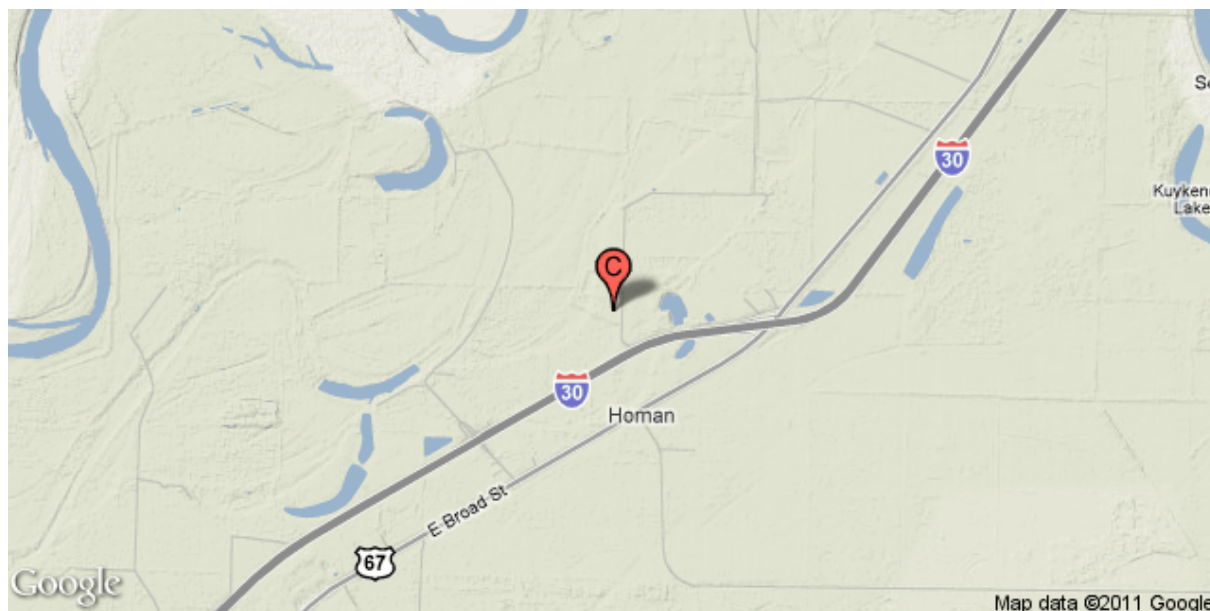
95.8 m Wind Speed Frequency Distribution



95.8 m Monthly Wind Rose



## C. Mast AR1121, Arkansas Tall Tower Program Monthly Report



Elevation (m)	Latitude	Longitude
80	33.55066	-93.88885

Anemometer (m)	Wind Speed (m/s)	TI
85.8	4.43	0.10
60.8	3.91	0.12
35.8	3.19	0.17

Summary Statistics	
Wind Power Density (W/m <sup>2</sup> )	78.1
85.8 m / 60.8 m Shear	0.413
Mean Temperature (°C)	30.2
80 m Projected Wind Speed (m/s)	4.31
Data Recovery (%)	100.0

## Sensor Status

### Wind Speed Sensors

Ch 1 (85.8 m) : Operational  
 Ch 2 (85.8 m) : Operational  
 Ch 3 (60.8 m) : Operational  
 Ch 4 (60.8 m) : Operational  
 Ch 5 (35.8 m) : Operational  
 Ch 6 (35.8 m) : Operational

### Wind Direction Sensors

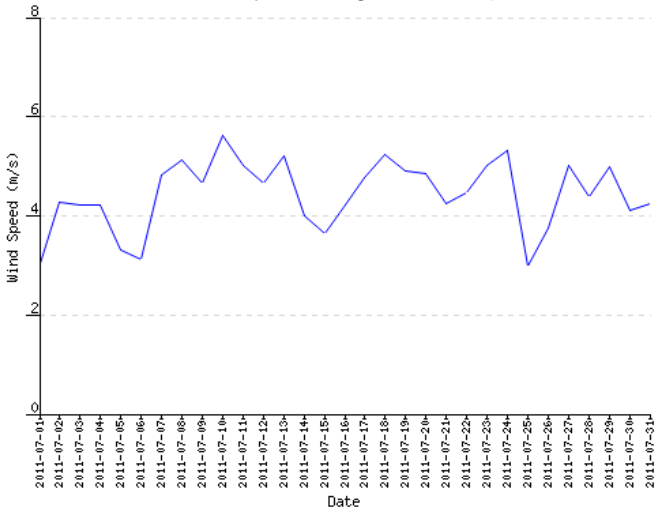
Ch 7 (85.8 m) : Operational  
 Ch 8 (60.8 m) : Operational  
 Ch 9 (35.8 m) : Operational

### Other

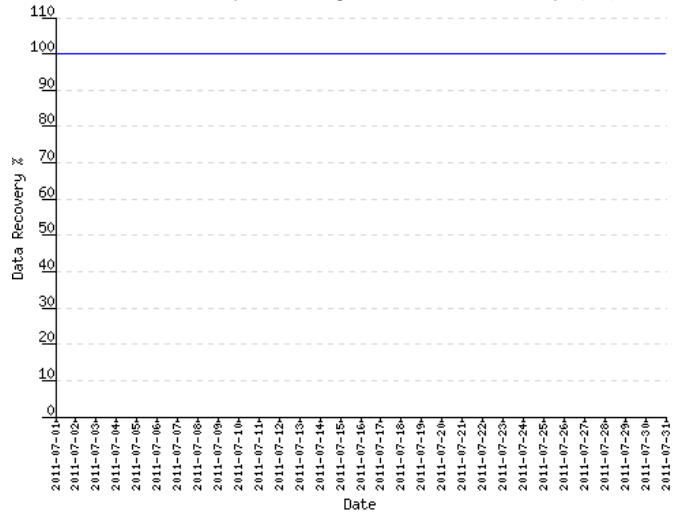
Ch 10 (35.0 m TEMP) : Operational  
 Ch 11 (85.0 m TEMP) : Operational

# Wind Speed Graphics

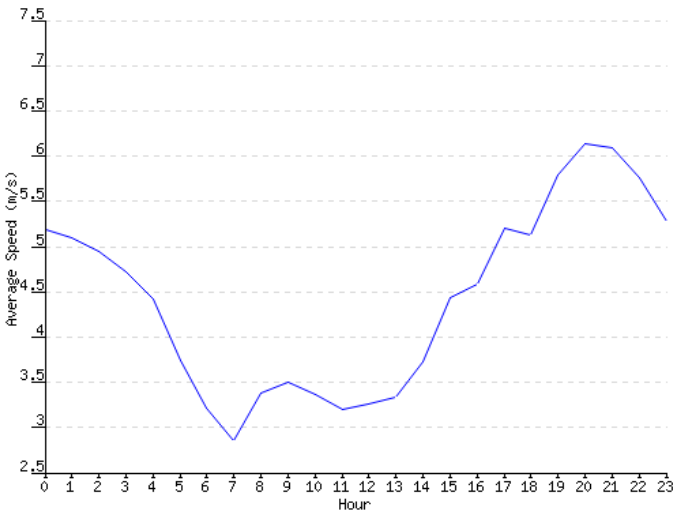
85.8 m Daily Average Wind Speeds



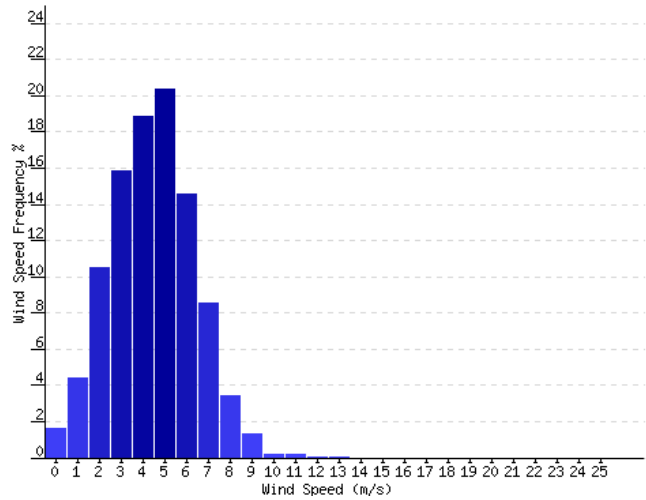
85.8 m Daily Average Data Recovery (%)



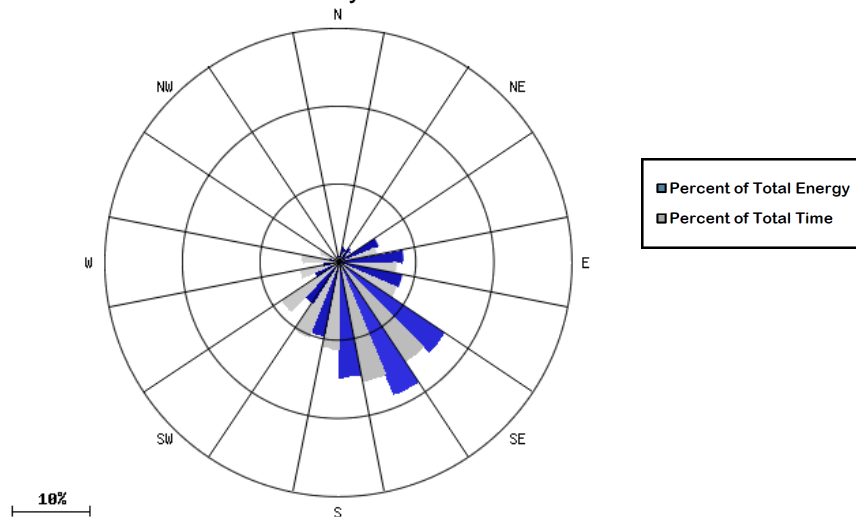
85.8 m Hourly Average Wind Speed



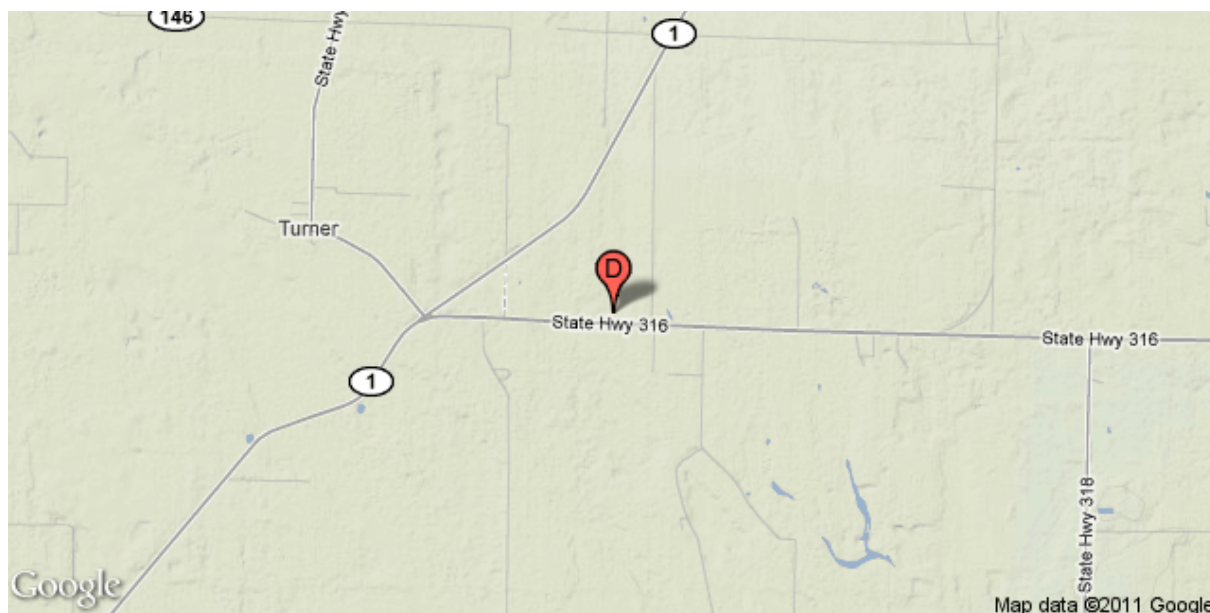
85.8 m Wind Speed Frequency Distribution



85.8 m Monthly Wind Rose



## D. Mast AR1134, Arkansas Tall Tower Program Monthly Report



Elevation (m)	Latitude	Longitude
53	34.46977	-90.99100

Anemometer (m)	Wind Speed (m/s)	TI
95.8	3.88	0.09
75.8	3.54	0.10
55.8	3.19	0.12

Summary Statistics	
Wind Power Density (W/m <sup>2</sup> )	59.0
95.8 m / 75.8 m Shear	0.441
Mean Temperature (°C)	28.6
80 m Projected Wind Speed (m/s)	3.58
Data Recovery (%)	100.0

## Sensor Status

### Wind Speed Sensors

Ch 1 (95.8 m) : Operational  
 Ch 2 (95.8 m) : Operational  
 Ch 3 (75.8 m) : Operational  
 Ch 4 (75.8 m) : Operational  
 Ch 5 (55.8 m) : Operational  
 Ch 6 (55.8 m) : Operational

### Wind Direction Sensors

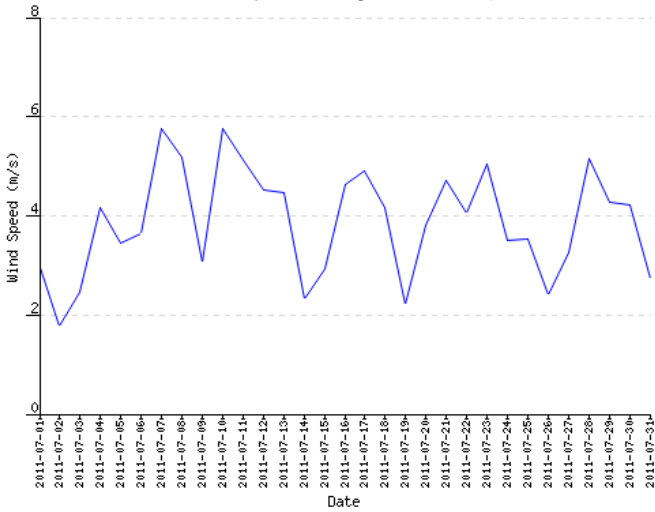
Ch 7 (95.8 m) : Operational  
 Ch 8 (75.8 m) : Operational  
 Ch 9 (55.8 m) : Operational

### Other

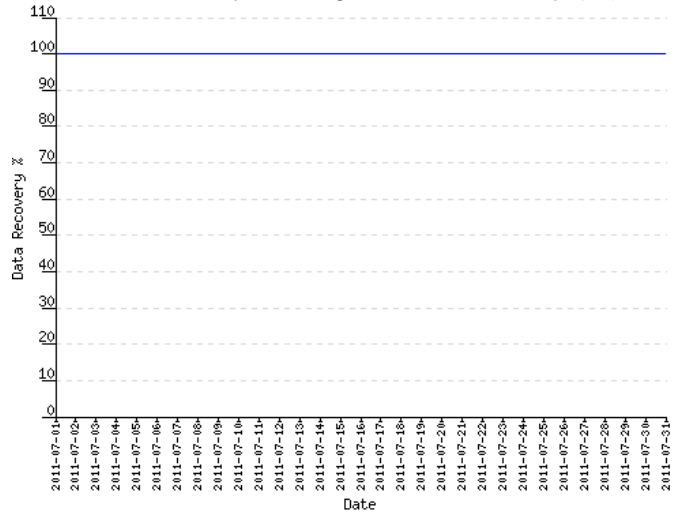
Ch 10 (95.0 m TEMP) : Operational  
 Ch 11 (55.0 m TEMP) : Operational

# Wind Speed Graphics

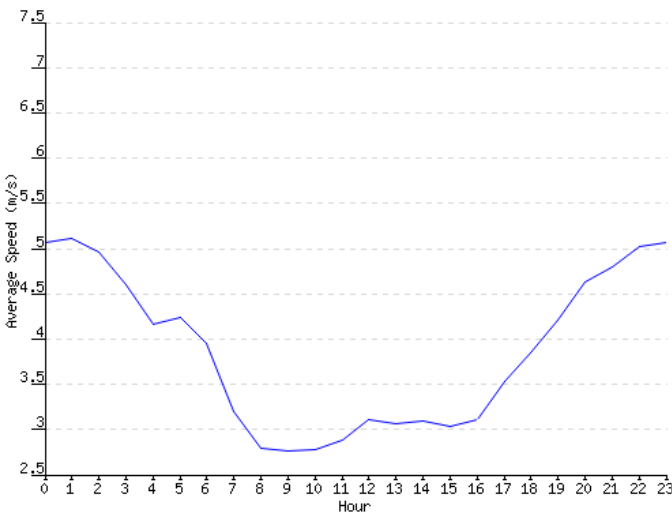
95.8 m Daily Average Wind Speeds



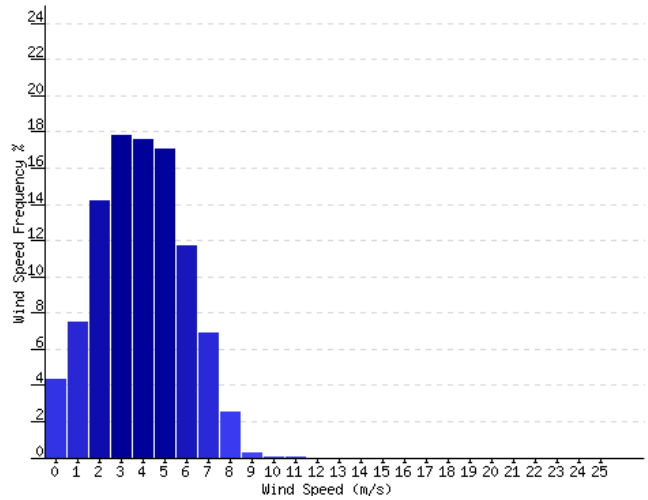
95.8 m Daily Average Data Recovery (%)



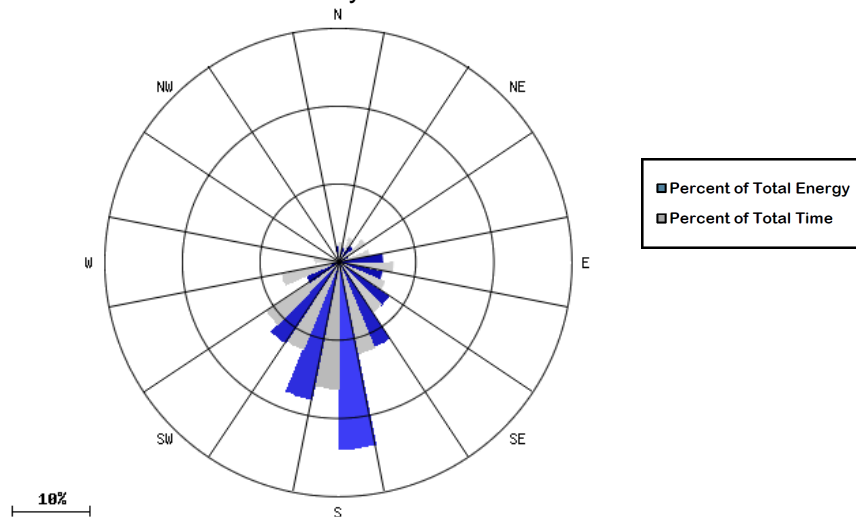
95.8 m Hourly Average Wind Speed



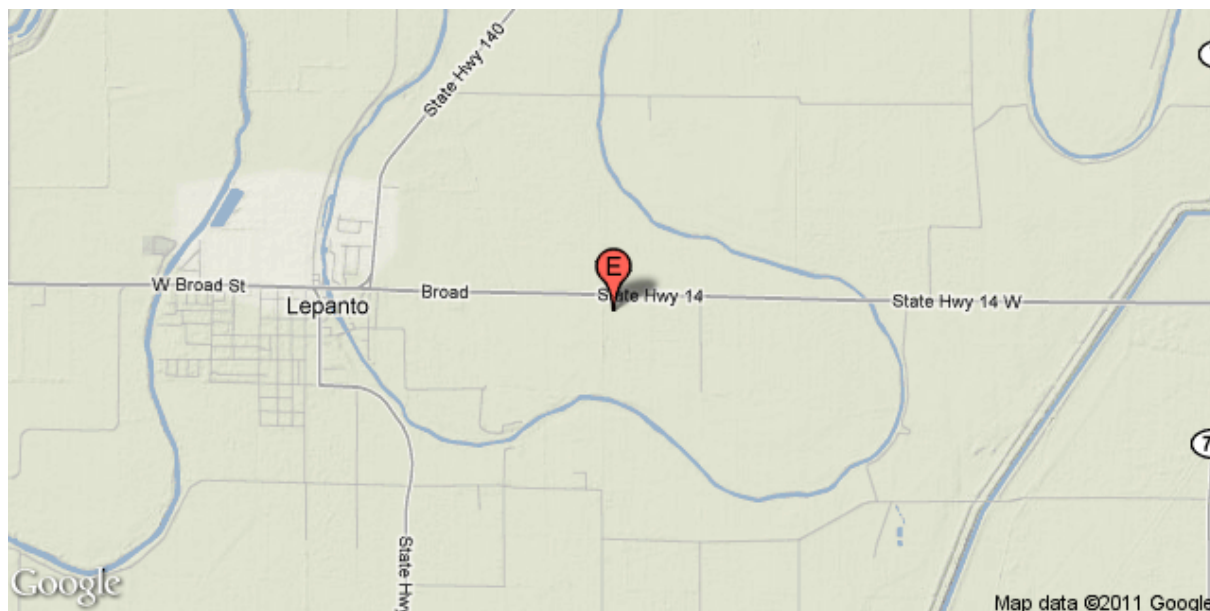
95.8 m Wind Speed Frequency Distribution



95.8 m Monthly Wind Rose



## E. Mast AR1138, Arkansas Tall Tower Program Monthly Report



Elevation (m)	Latitude	Longitude
67	35.61166	-90.30388

Anemometer (m)	Wind Speed (m/s)	TI
75.8	4.30	0.09
52.8	3.86	0.10
35.8	3.44	0.13

Summary Statistics	
Wind Power Density (W/m <sup>2</sup> )	74.9
75.8 m / 52.8 m Shear	0.339
Mean Temperature (°C)	28.9
80 m Projected Wind Speed (m/s)	4.38
Data Recovery (%)	100.0

## Sensor Status

### Wind Speed Sensors

Ch 1 (75.8 m) : Operational  
 Ch 2 (75.8 m) : Operational  
 Ch 3 (52.8 m) : Operational  
 Ch 4 (52.8 m) : Operational  
 Ch 5 (35.8 m) : Operational  
 Ch 6 (35.8 m) : Operational

### Wind Direction Sensors

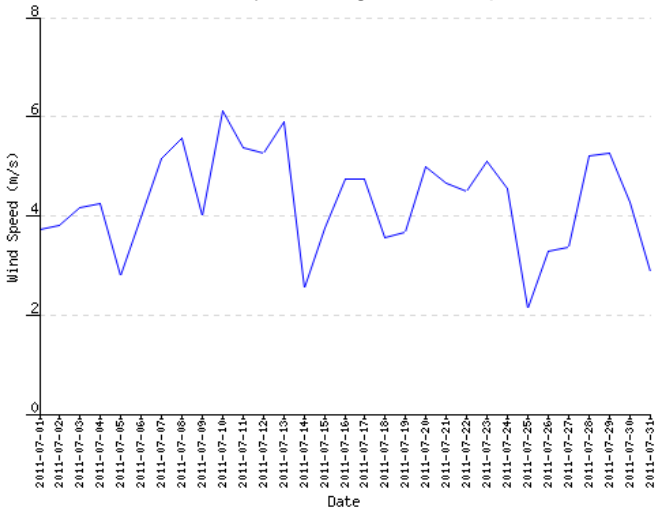
Ch 7 (75.8 m) : Operational  
 Ch 8 (52.8 m) : Operational  
 Ch 9 (35.8 m) : Operational

### Other

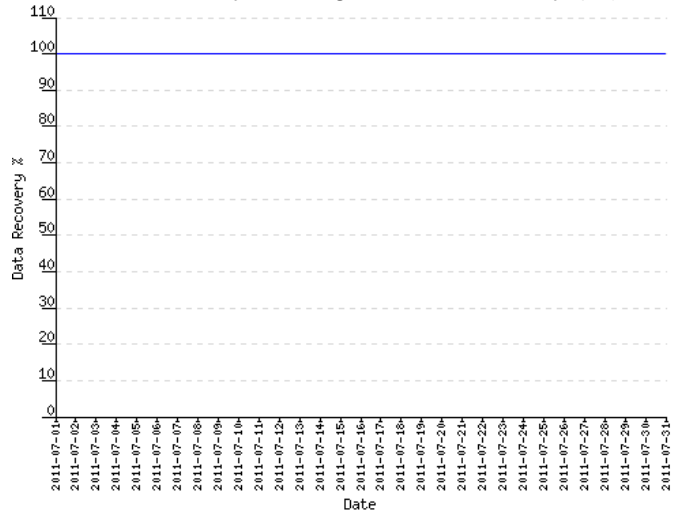
Ch 10 (75.0 m TEMP) : Operational  
 Ch 11 (35.0 m TEMP) : Operational

# Wind Speed Graphics

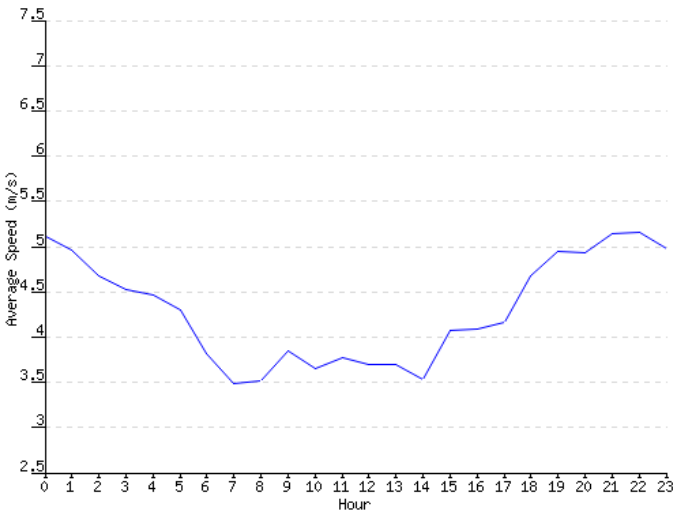
75.8 m Daily Average Wind Speeds



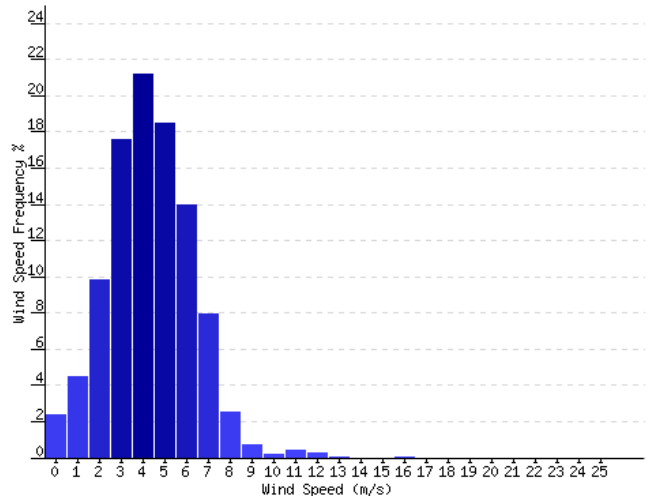
75.8 m Daily Average Data Recovery (%)



75.8 m Hourly Average Wind Speed



75.8 m Wind Speed Frequency Distribution



75.8 m Monthly Wind Rose

