

Weather and Seeing Statistics

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9 March 2010 / CHARA Array Winter Meeting, Pasadena

Outline

- 1 Weather
 - What's New?
 - Stats
 - Weather in the Lab
- 2 Seeing
 - r_0
 - t_0
- 3 Miscellaneous

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Weather

- Davis Instruments “NWS”-style remote weather station
 - Not part of the bunker weather logs . . .
 - But it does have a rain gauge and a more sensitive anemometer
- RF chokes now (or soon to be) installed on W1/W2/E2
 - Humidity readings should be more accurate

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Weather

Cross-year Vital Stats

Year	2005	2006	2007	2008	2009
Measurable Wind	11.6%	14.0%	12.9%	16.2%	19.2%
High Wind [†]	0.8%	0.4%	0.8%	0.2%	0.2%
High Humidity [‡]	20.0%	18.1%	10.9%	14.0%	16.5%

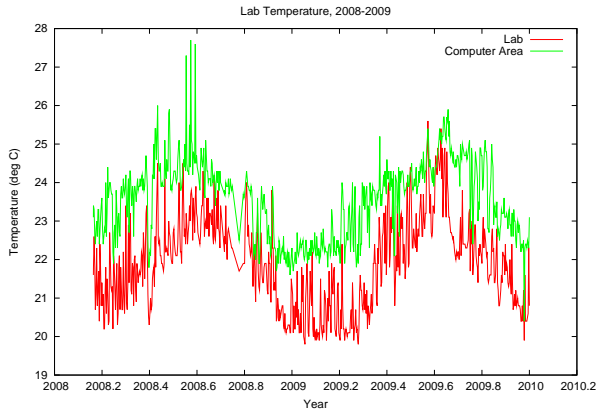
Table: Percentages indicate percentage of time. Values quoted are the largest of the six bunker weather stations. † High wind is defined as being above 20 kph. ‡ High Humidity is defined as being above 90%.

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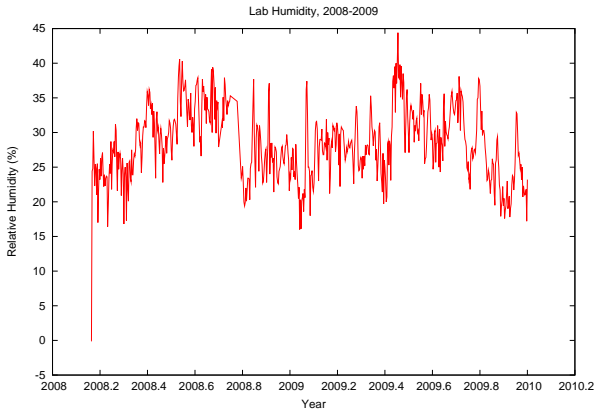
Weather

Lab Conditions



Weather

Lab Conditions

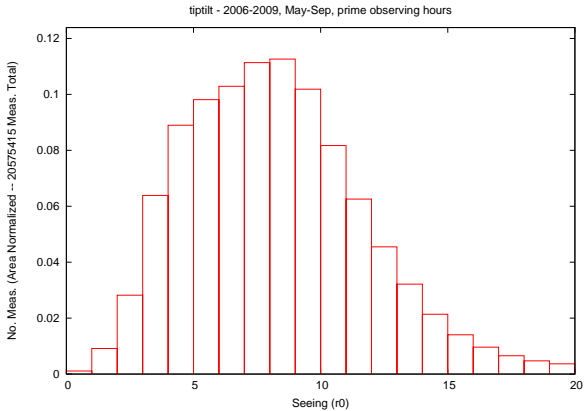


Outline

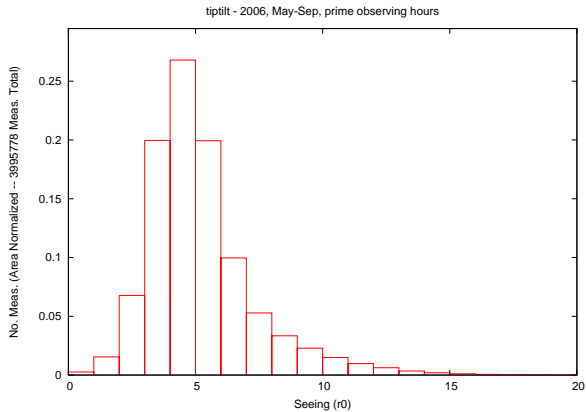
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Seeing

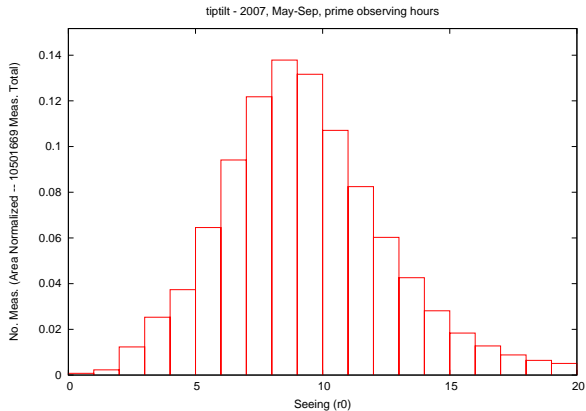
2006-2009



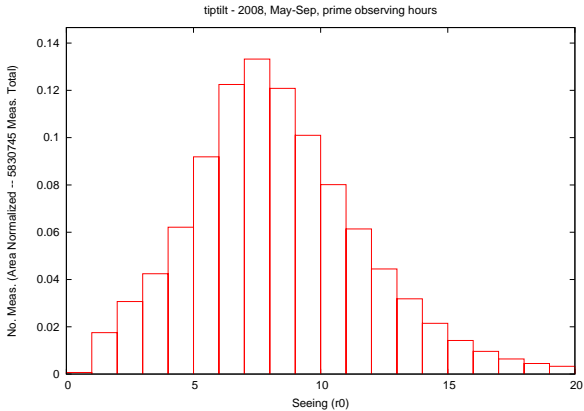
Seeing 2006



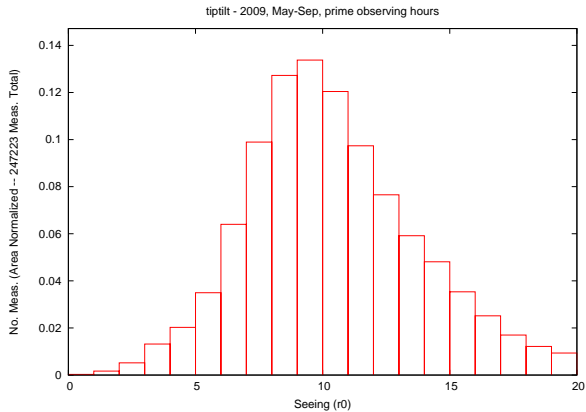
Seeing 2007



Seeing 2008



Seeing 2009

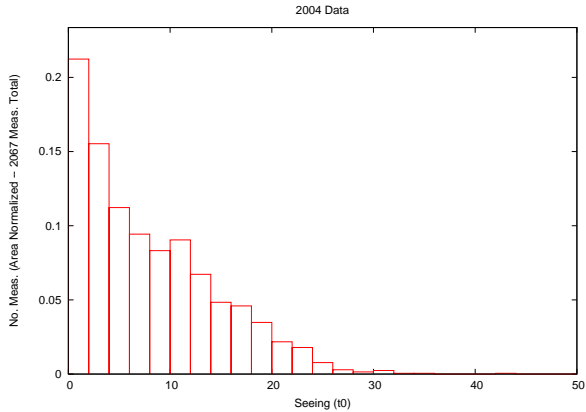


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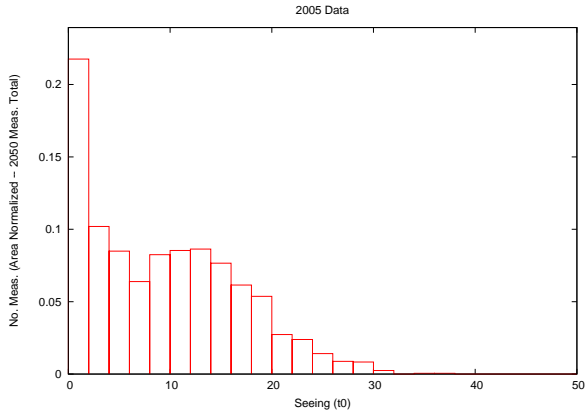
Seeing

t_0



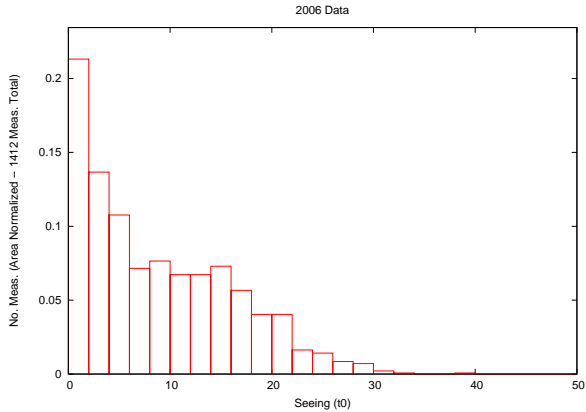
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t_0



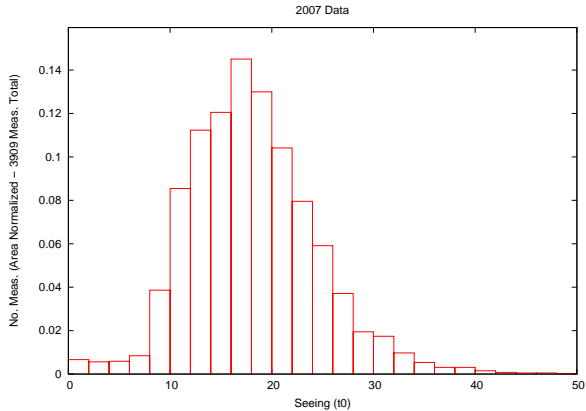
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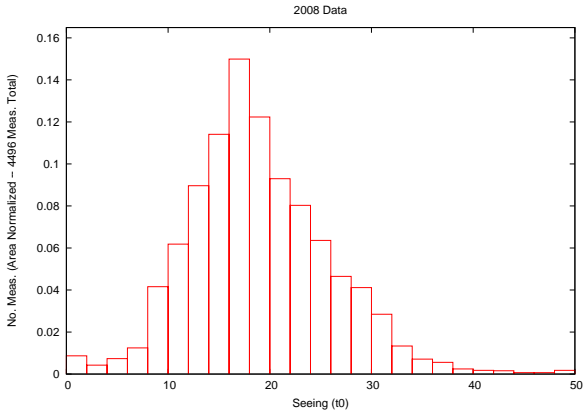
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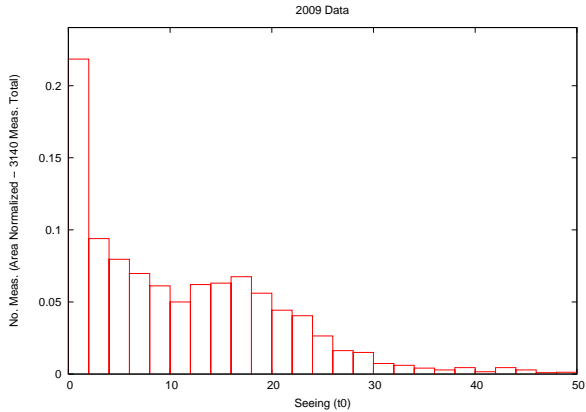
Seeing

t_0



Seeing

t_0



Miscellaneous

Control System Upgrade

We are in the process of upgrading both the hardware and software of the core CHARA control machines.

- We have 7 Linux variants (including the real-time versions) in the core control system computers – several of them with 32- and 64-bit versions.
- Propagating code changes is a chore
- Several of the variants don't support modern hardware very well
- We wish to move away from real-time systems – modern hardware is plenty fast

Miscellaneous

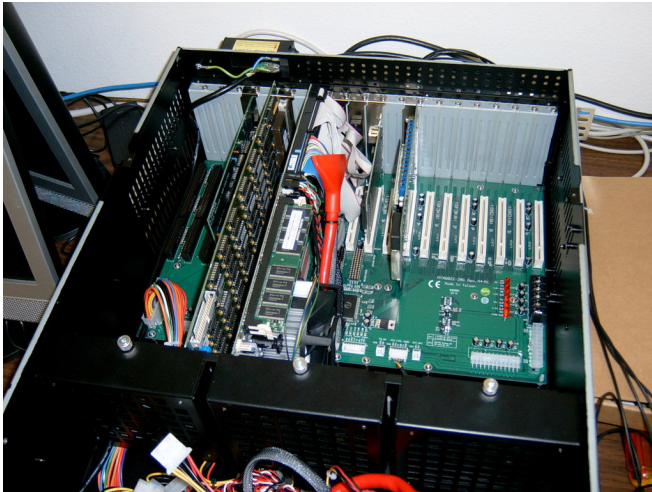
Control System Upgrade

The process is already underway!

- Standardizing on CentOS 5.3, a community version of Red Hat Enterprise Linux
- `wobble`, machine and server, is scheduled to be retired
- S2 computer has been running CentOS since October 2009

Miscellaneous

New replacement control system computers



Miscellaneous

Hardware Upgrade

- Rack-mount, PCI/ISA backplane single-board computers – 12 in hand, 2 in use
 - Dual-core Pentium D, 3.4 GHz
 - Slots for 6 ISA and 11 PCI cards
- Upgraded framegrabber cards
 - better sensitivity
 - capable of background subtraction
- Modern DIO/Counter cards

Miscellaneous

The Future

Plans are in the works to replace the DOS-based telescope control with a CentOS version

- Acquired licenses for TPOINT and telescope control from Patrick Wallace
- Have pulse-generator cards in hand
- Still need to verify that telescope encoder cards, as well as dome encoder cards, work under CentOS
- Timeline . . . good question