Weather and Seeing Stats, Control System Upgrades

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Weather Station Uptime

	Cum.	2011	2012	2013	2014
E1	95.4	98.9	97.3	99.9	99.7
E2	89.8	94.7	97.7	93.0	62.2
S1	94.0	96.8	99.0	99.7	79.8
S2	93.6	98.2	92.8	91.7	98.5
W1	95.8	97.1	98.8	93.3	97.9
W2	94.8	97.3	98.8	92.3	99.6
L1	67.0	47.0	30.5	12.9	99.7

Table: Weather station uptimes as a percentage of time.

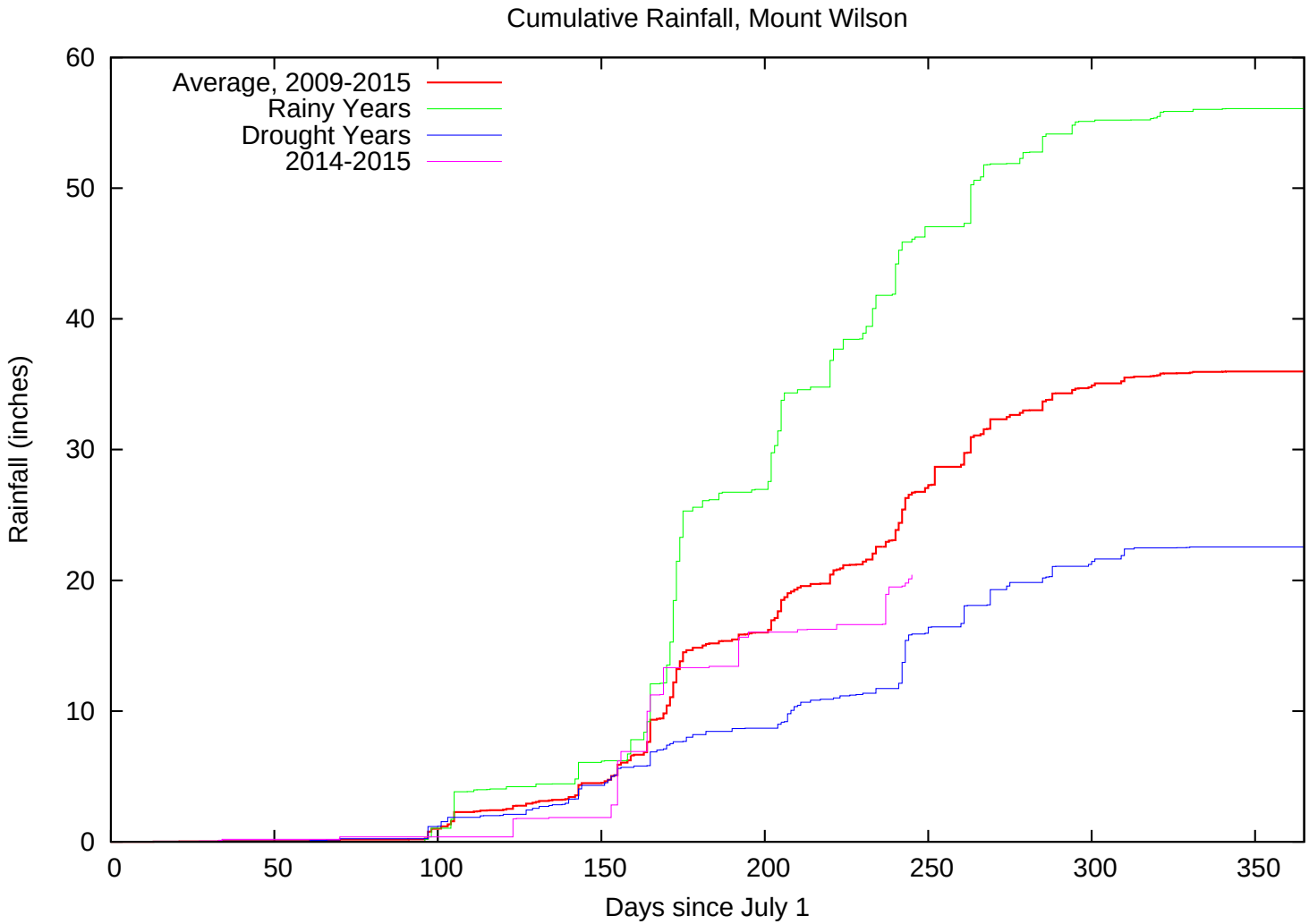
Cross-year Vital Stats

	2009	2010	2011	2012	2013	2014
Measurable Wind	19.2	23.2	30.4	35.6	27.5	11.4
High Wind†	0.2	0.7	0.5	0.3	0.3	0.2
High Humidity♮	16.5	21.6	18.2	15.6	13.5	16.0

Table: Table entries are percentages 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%.

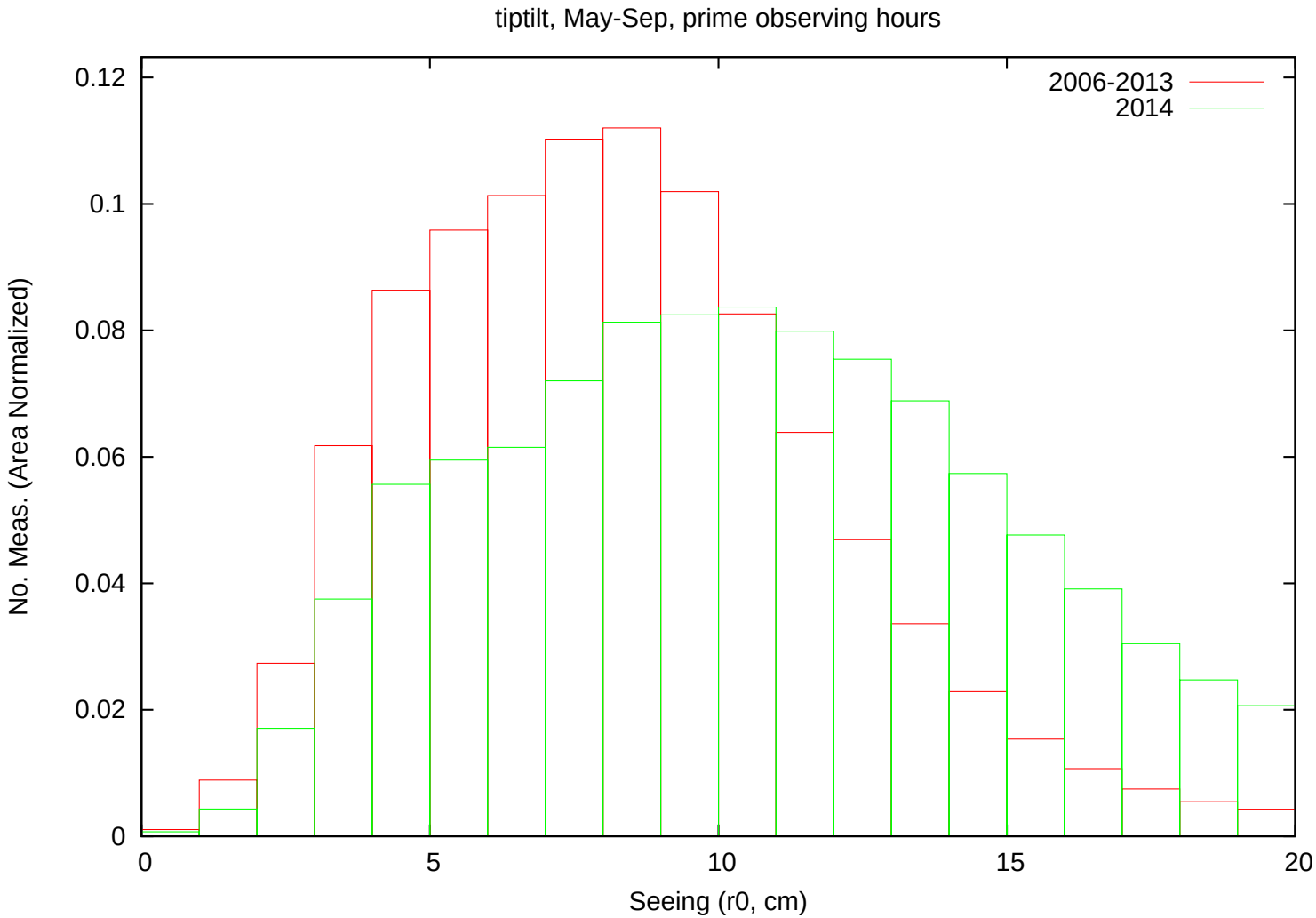
Rainfall

data courtesy of L. Webster



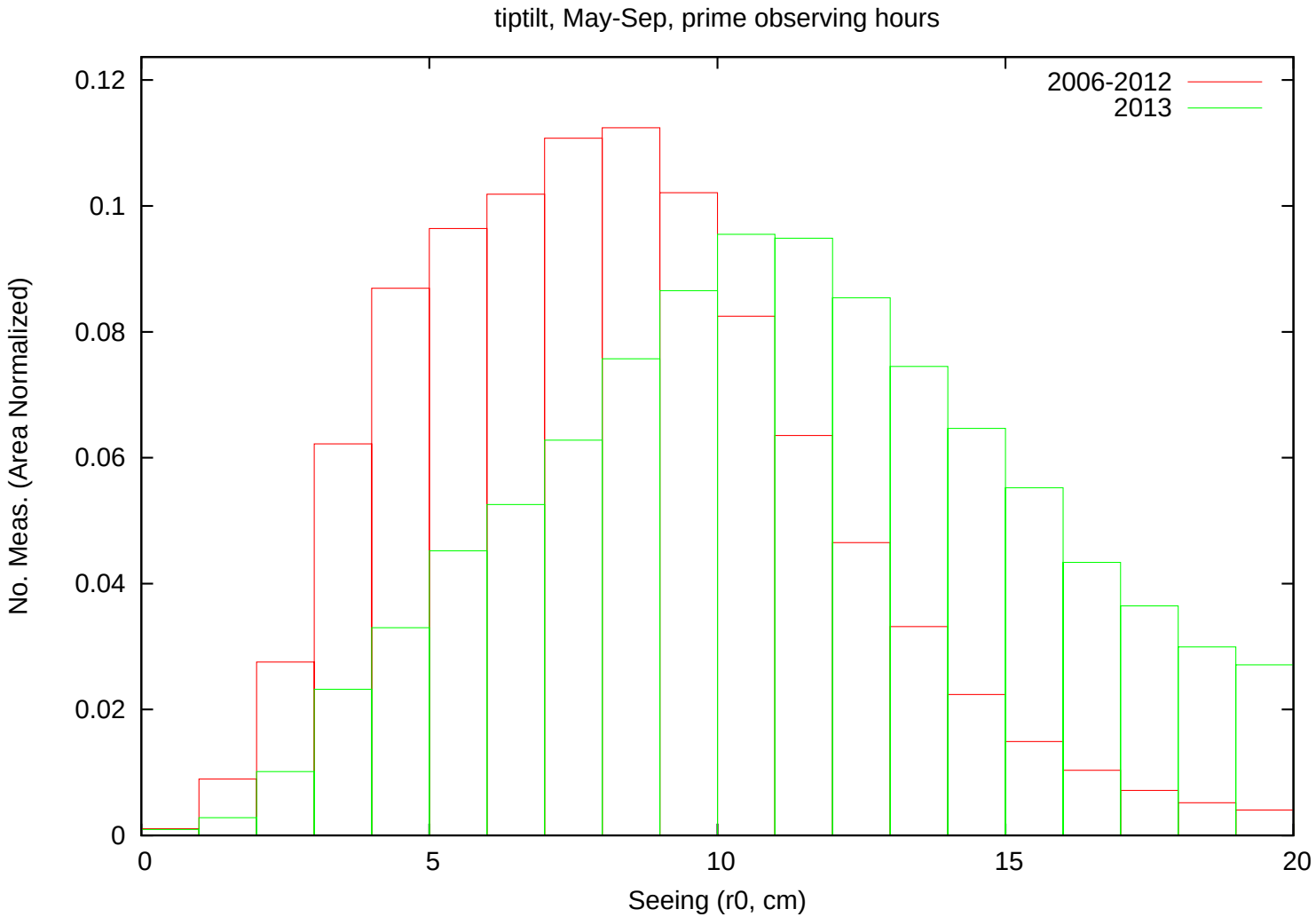
Seeing

r_0 values



Seeing

r_0 values, last year



Control System Changes

Hardware

- New computers at each telescope – actually mounted ON the telescope
  - “shoe-box” style computer (industrial node wall-mount chassis)
  - 5-position backplane and PICMG 1.3 single-board computer
  - Core i3 dual-core CPU, 2.8-ish GHz
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- New computer at the western OPLE computer area rack
  - Installed to control all 6 LabAO deformable mirrors
  - Dual Xeon quad-core CPUs, 2.4 GHz, 24 GB memory

Control System Changes

Software – Current Status

- CentOS 5 with 2.6.18 kernel
  - Released April 2007
  - Full support ended March 2014
  - Bug fixes end March 2017
- Overlayed with 2.6.33RT kernel
  - New Mexico Tech/FSM Labs (Yodaiken) model
  - Intricate patches – inflexible updating
  - Not in active development

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- Should full RT be necessary, “CONFIG_PREEMPT_RT” available as a patch to a wider variety of kernels
  - `http://www.kernel.org/pub/linux/kernel/projects/rt/`

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- About 1/3 done . . . reduction pipelines and libraries