



Texas Commission on Environmental Quality

New Episodes for Ozone Modeling

____Houston/Galveston/Brazoria____
Photochemical Modeling Technical
Committee

November 8, 2006



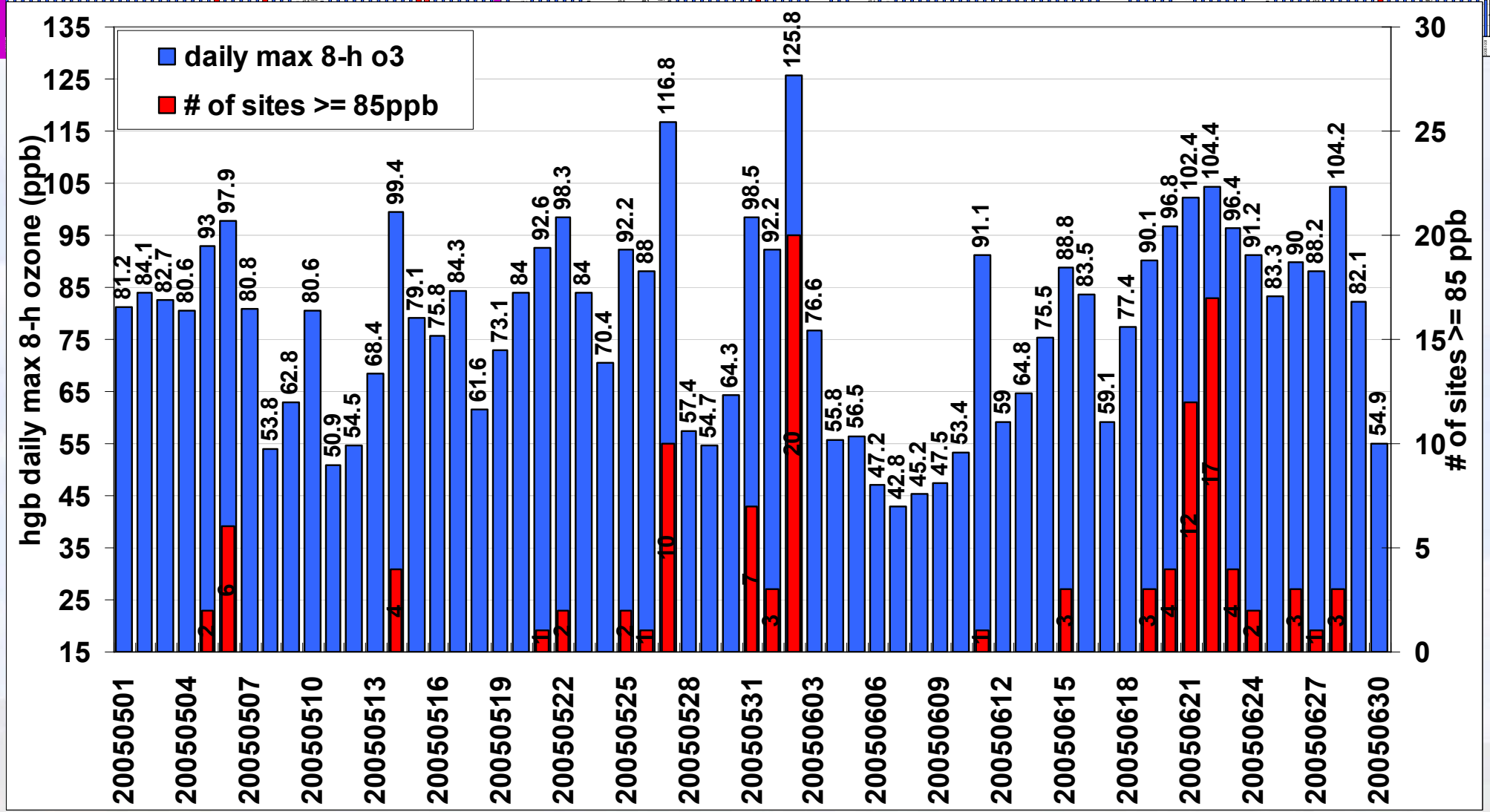
Why New Episodes?

- **The TexAQS 2000 episode provided a solid platform for demonstrating attainment of the 1-hour ozone standard and for initial 8-hour analyses, but there are several advantages to selecting new episodes for 8-hour work:**
 - **Many regulatory and demographic changes since 2000 mean we can have more confidence in analyses based on more recent episodes.**
 - **Episodes from 2005 and 2006 can take advantage of the TexAQS II data and findings, especially during the intensive field campaign (August 1 – October 15).**
 - **Selecting a number of new episodes is useful, because the 8-hour attainment test benefits from including a large number of days with high modeled ozone concentrations.**



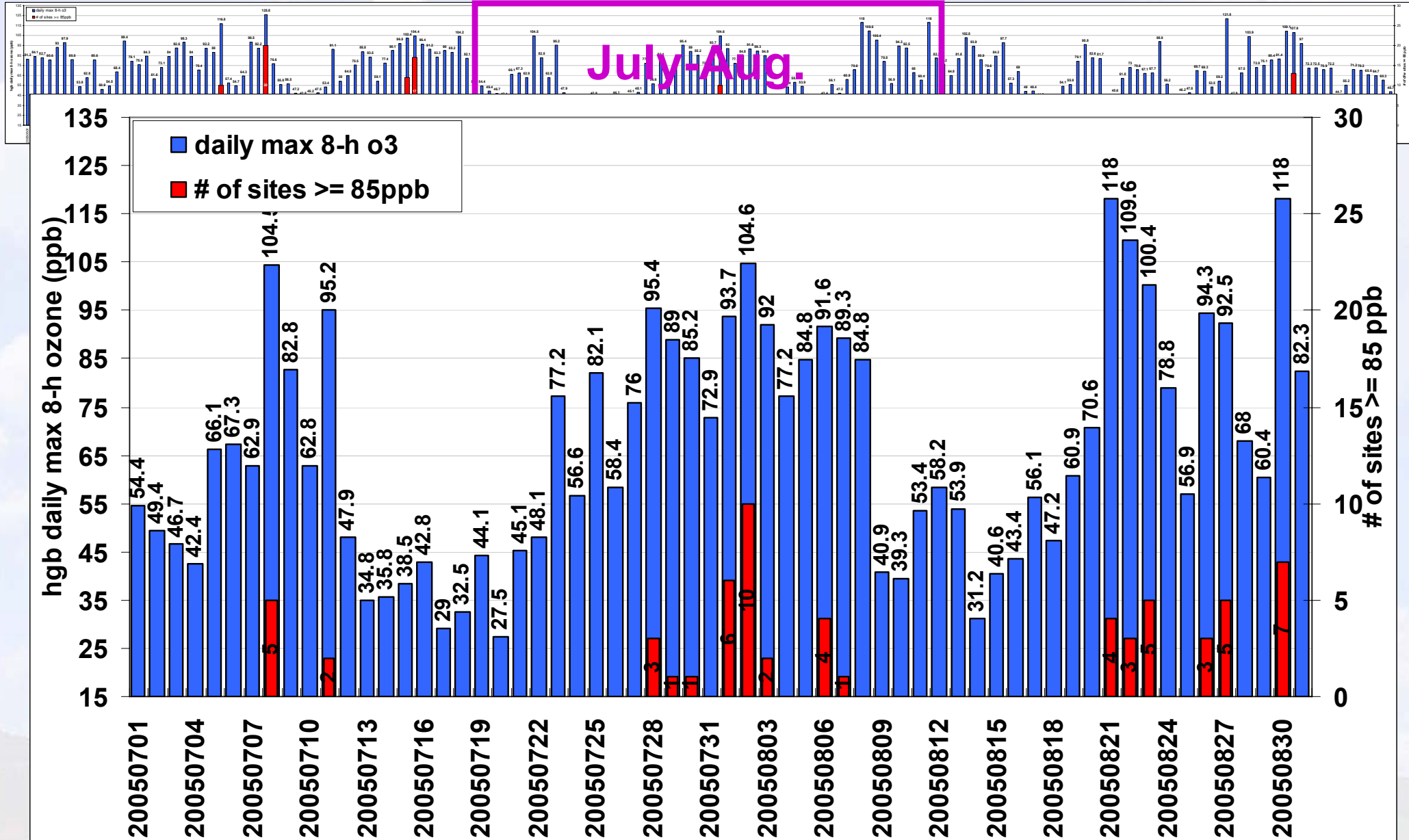
The 2005 Ozone Season in HGB

May-June



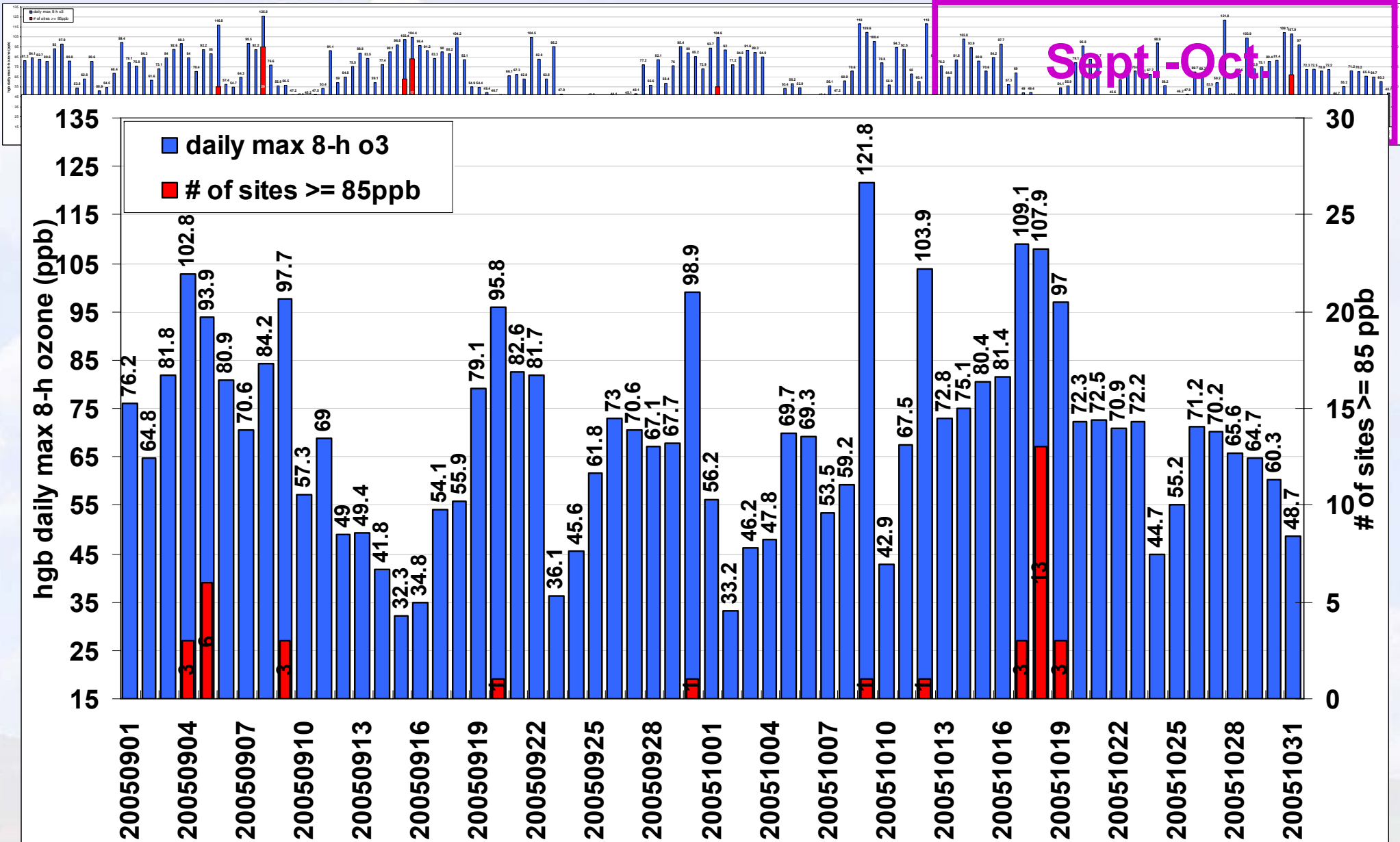


The 2005 Ozone Season in HGB



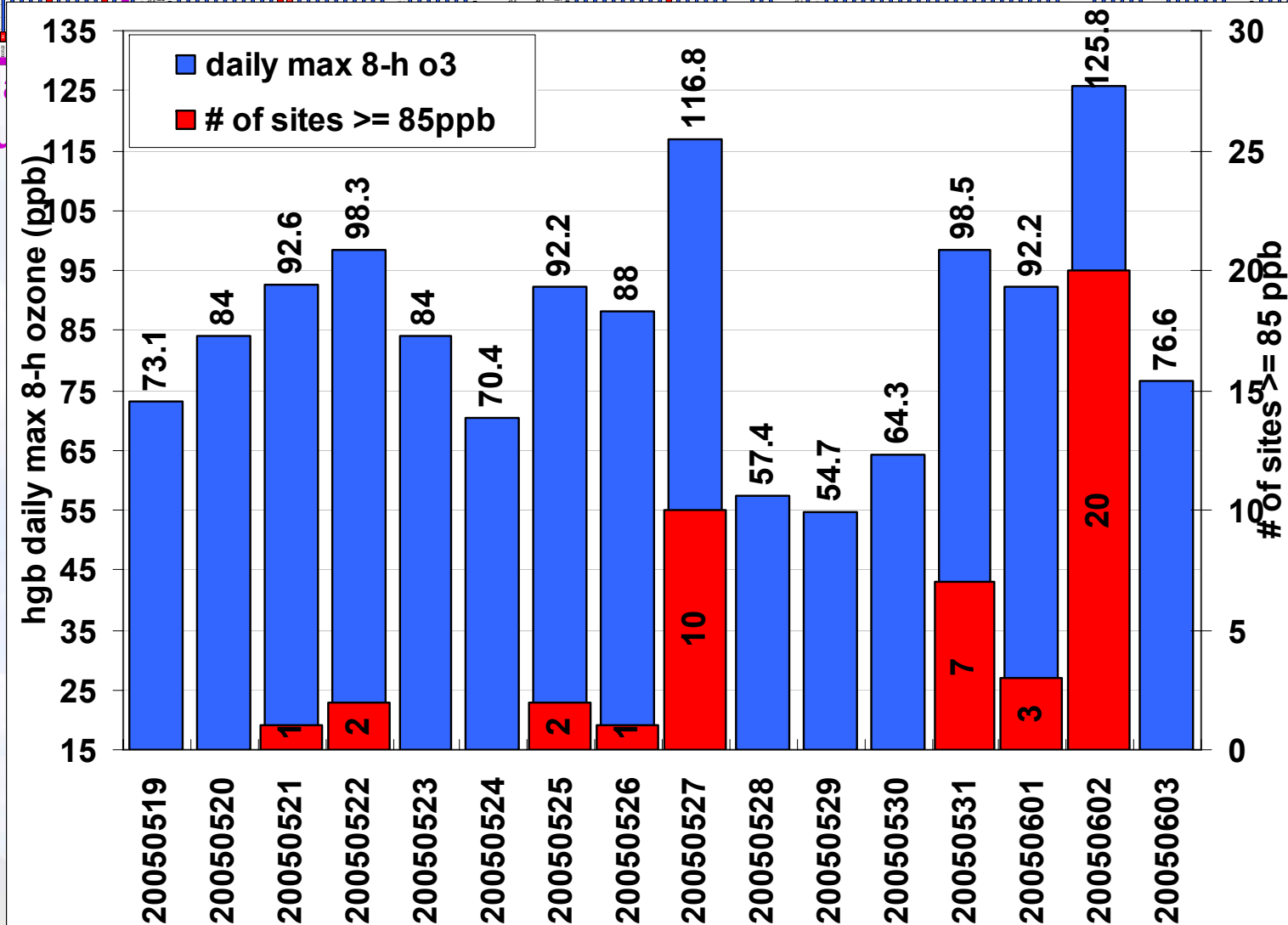


The 2005 Ozone Season in HGB





Some Candidate 2005 Episodes for HGB





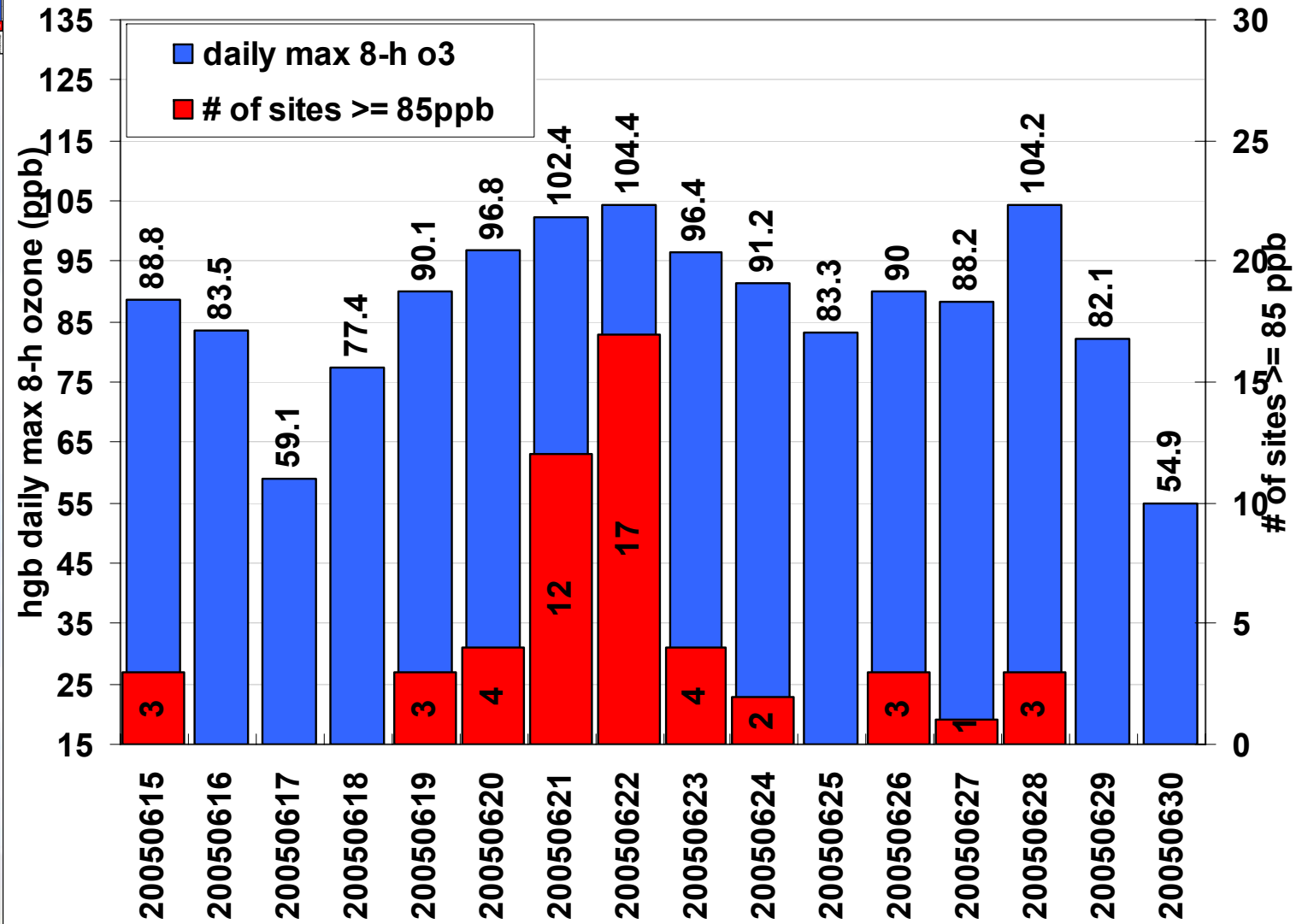
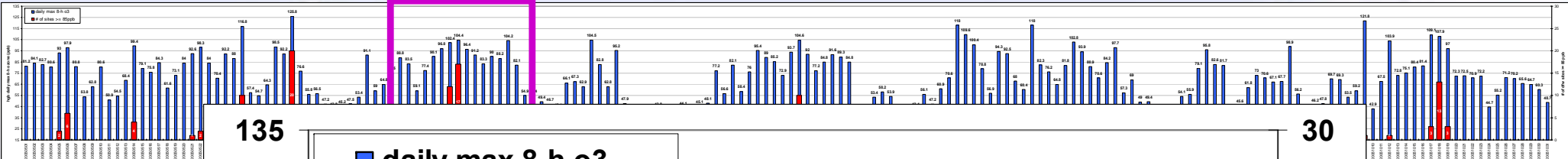
Episode Characteristics

May 19 - June 3, 2005

Episode Date	Maximum Hourly Ozone		Maximum 8-Hour Ozone	
	Ozone (ppb)	# of Sites ≥ 125 ppb	Ozone (ppb)	# of Sites ≥ 85 ppb
5/19/2005	88.5	0	73.1	0
5/20/2005	118	0	84	0
5/21/2005	115.5	0	92.6	1
5/22/2005	160.8	1	98.3	2
5/23/2005	104.5	0	84	0
5/24/2005	112	0	70.4	0
5/25/2005	152	3	92.2	2
5/26/2005	126	1	88	1
5/27/2005	158	4	116.8	10
5/28/2005	69	0	57.4	0
5/29/2005	73	0	54.7	0
5/30/2005	83	0	64.3	0
5/31/2005	113	0	98.5	7
6/1/2005	115	0	92.2	3
6/2/2005	148	6	125.8	20
6/3/2005	85	0	76.6	0



Some Candidate 2005 Episodes for HGB





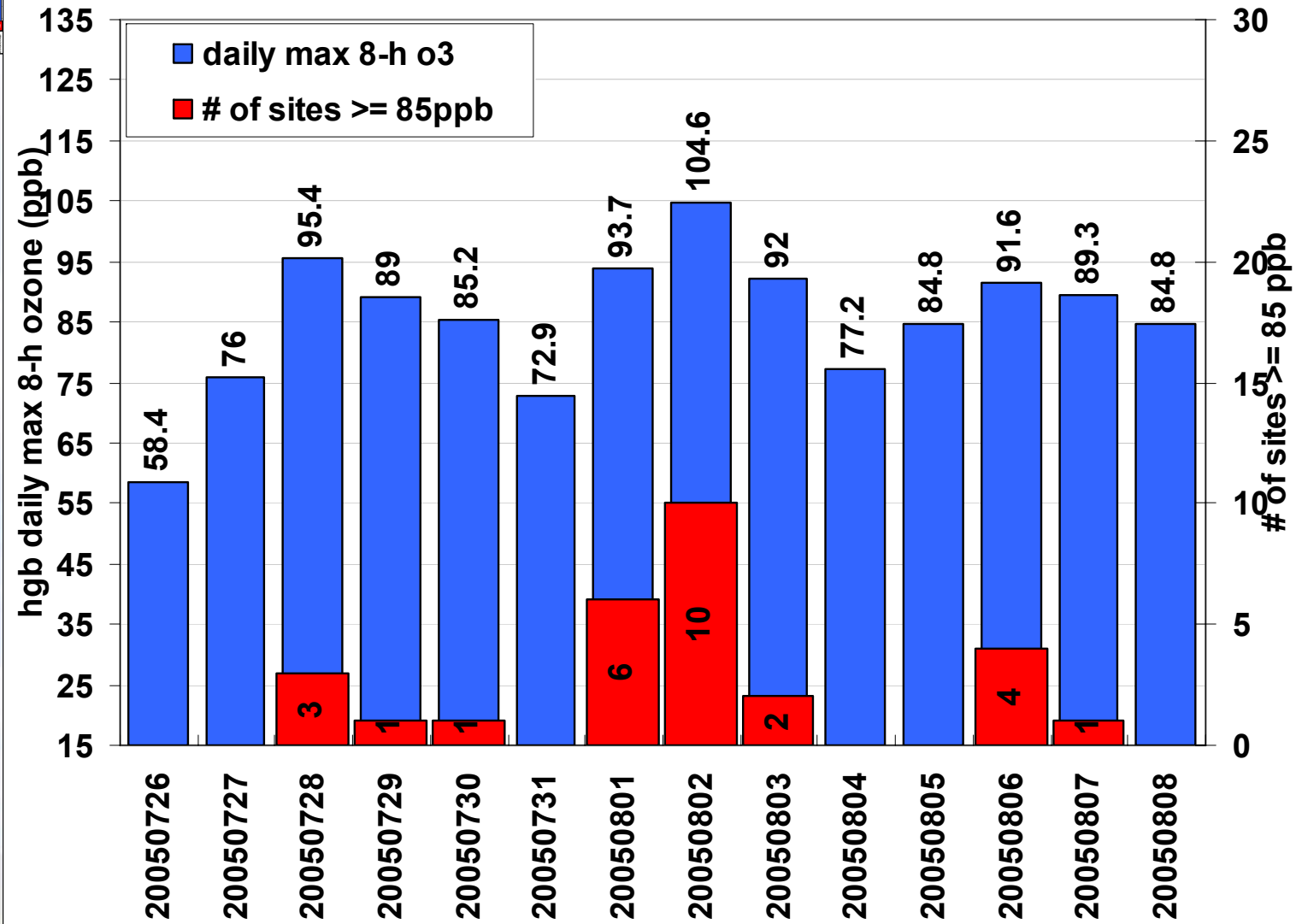
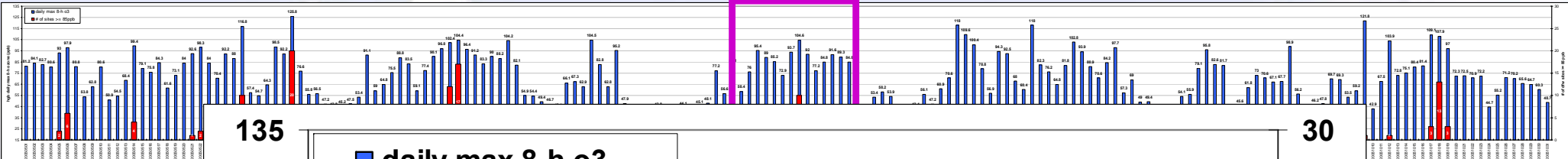
Episode Characteristics

June 15 - June 30, 2005

Episode Date	Maximum Hourly Ozone		Maximum 8-Hour Ozone	
	Ozone (ppb)	# of Sites \geq 125 ppb	Ozone (ppb)	# of Sites \geq 85 ppb
6/15/2005	147	4	88.8	3
6/16/2005	108.6	0	83.5	0
6/17/2005	72.7	0	59.1	0
6/18/2005	99.1	0	77.4	0
6/19/2005	120	0	90.1	3
6/20/2005	120.5	0	96.8	4
6/21/2005	117	0	102.4	12
6/22/2005	123	0	104.4	17
6/23/2005	138.7	1	96.4	4
6/24/2005	104.2	0	91.2	2
6/25/2005	93.4	0	83.3	0
6/26/2005	109.2	0	90	3
6/27/2005	103	0	88.2	1
6/28/2005	143.9	1	104.2	3
6/29/2005	119.6	0	82.1	0
6/30/2005	70	0	54.9	0



Some Candidate 2005 Episodes for HGB





Episode Characteristics

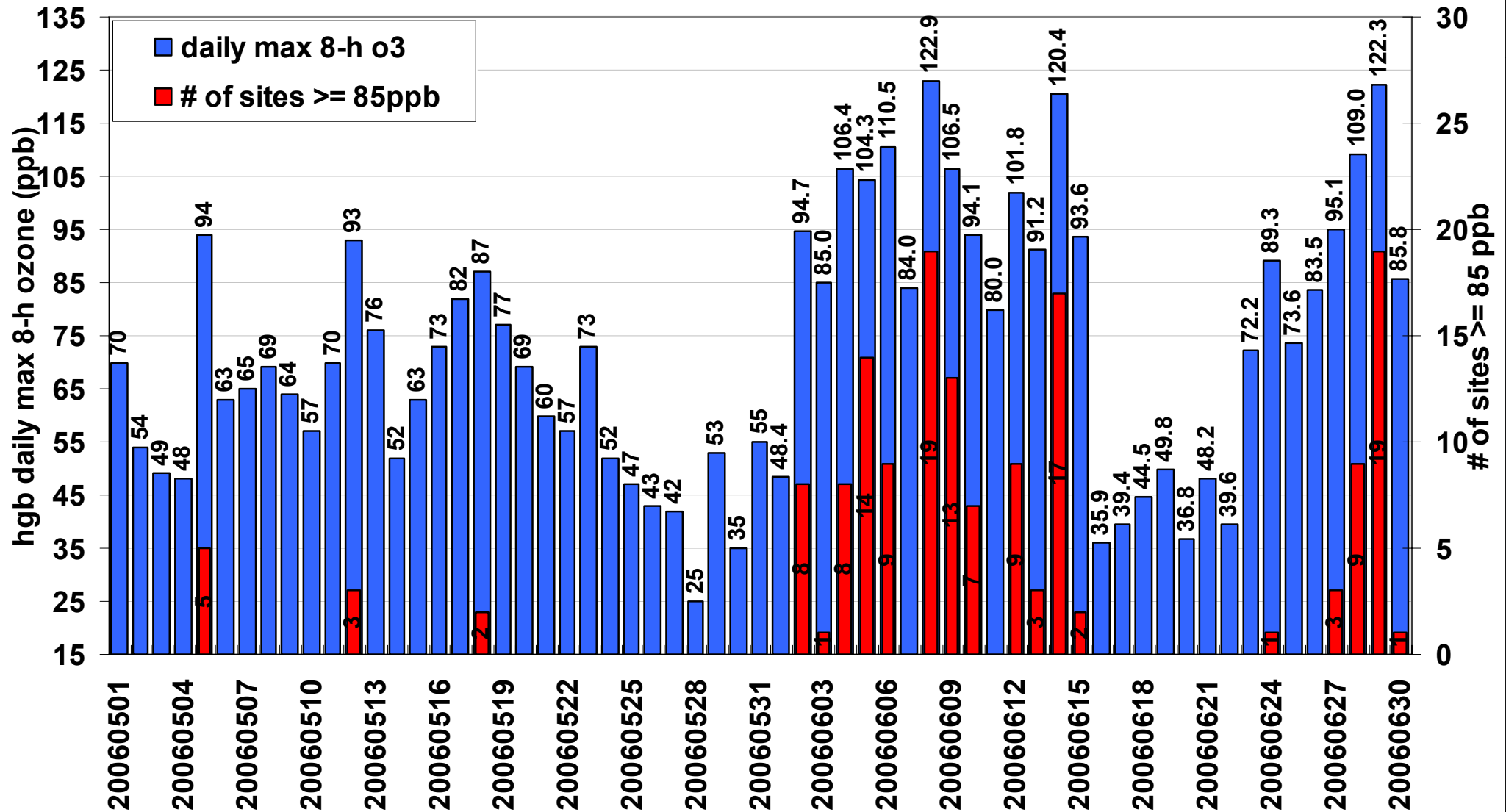
July 26 - Aug. 8, 2005

Episode Date	Maximum Hourly Ozone		Maximum 8-Hour Ozone	
Calendar	Ozone (ppb)	# of Sites ≥ 125 ppb	Ozone (ppb)	# of Sites ≥ 85 ppb
7/26/2005	79.5	0	58.4	0
7/27/2005	115.7	0	76	0
7/28/2005	121.6	0	95.4	3
7/29/2005	131	1	89	1
7/30/2005	104.3	0	85.2	1
7/31/2005	86.4	0	72.9	0
8/1/2005	140	5	93.7	6
8/2/2005	135.1	4	104.6	10
8/3/2005	132.1	1	92	2
8/4/2005	108.4	0	77.2	0
8/5/2005	104.3	0	84.8	0
8/6/2005	120	0	91.6	4
8/7/2005	126	1	89.3	1
8/8/2005	117.2	0	84.8	0



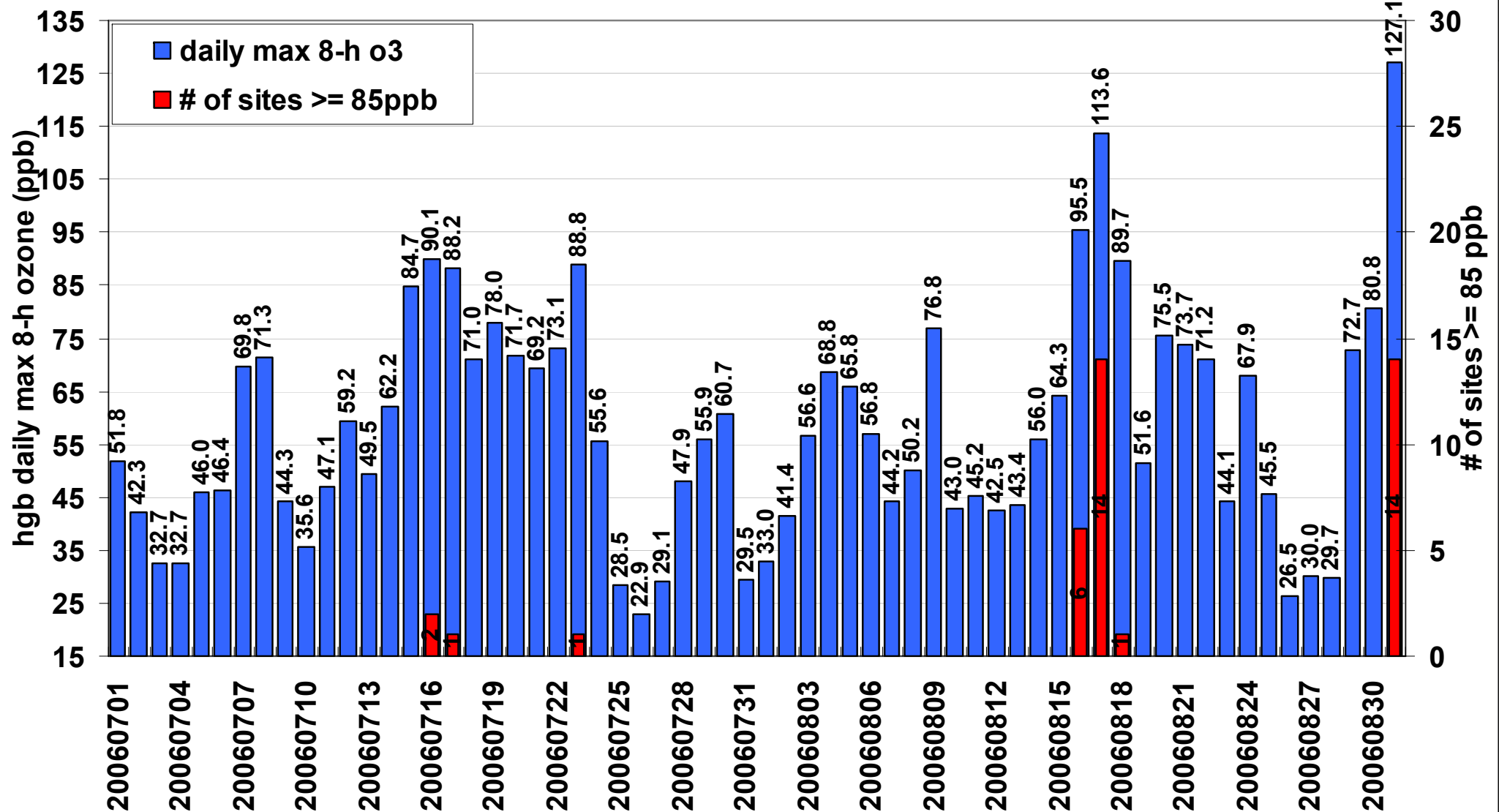
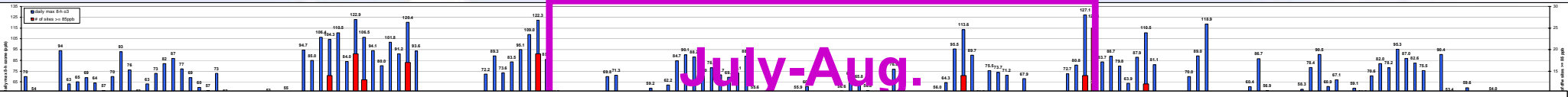
The 2006 Ozone Season in HGB

May-June



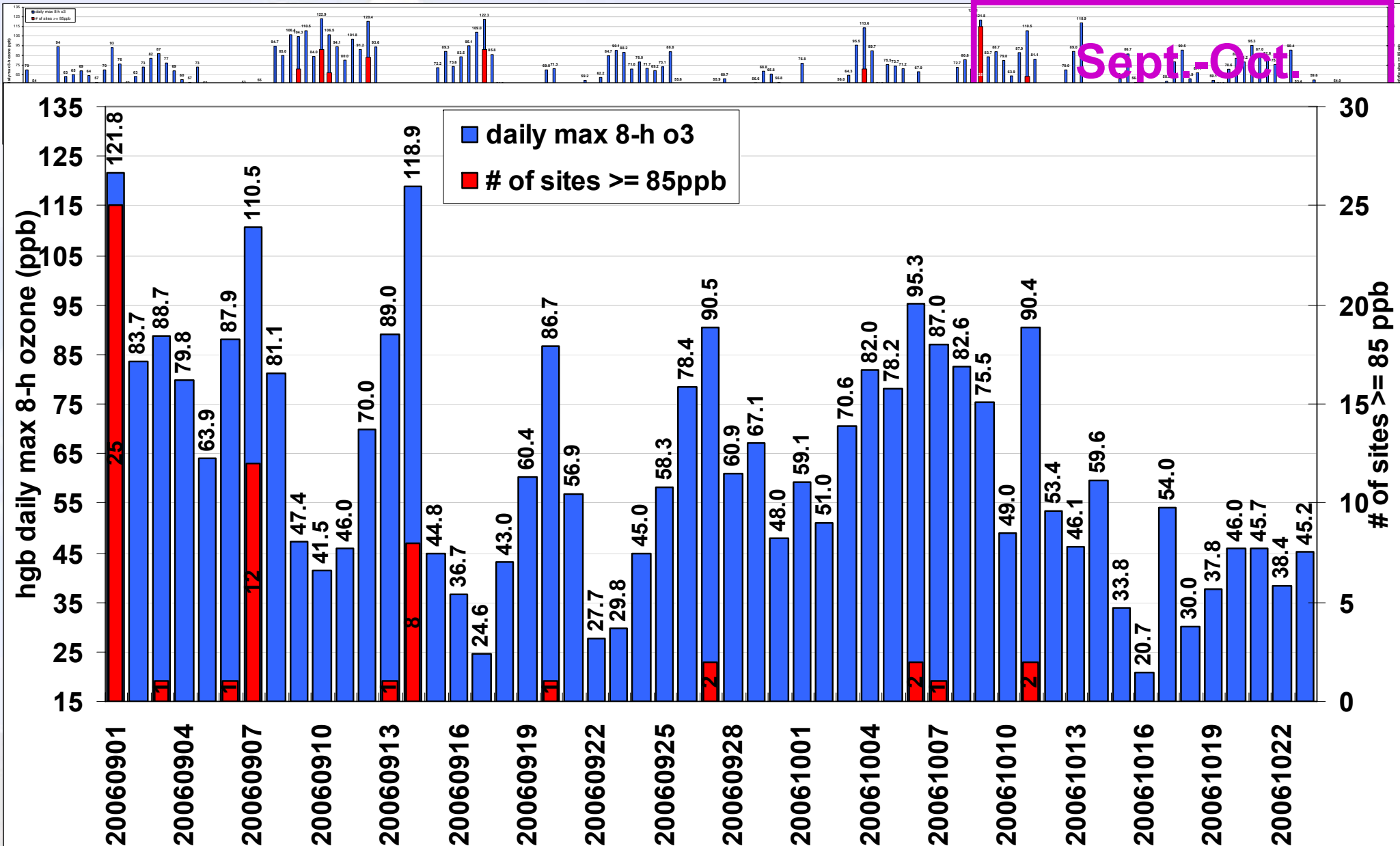


The 2006 Ozone Season in HGB





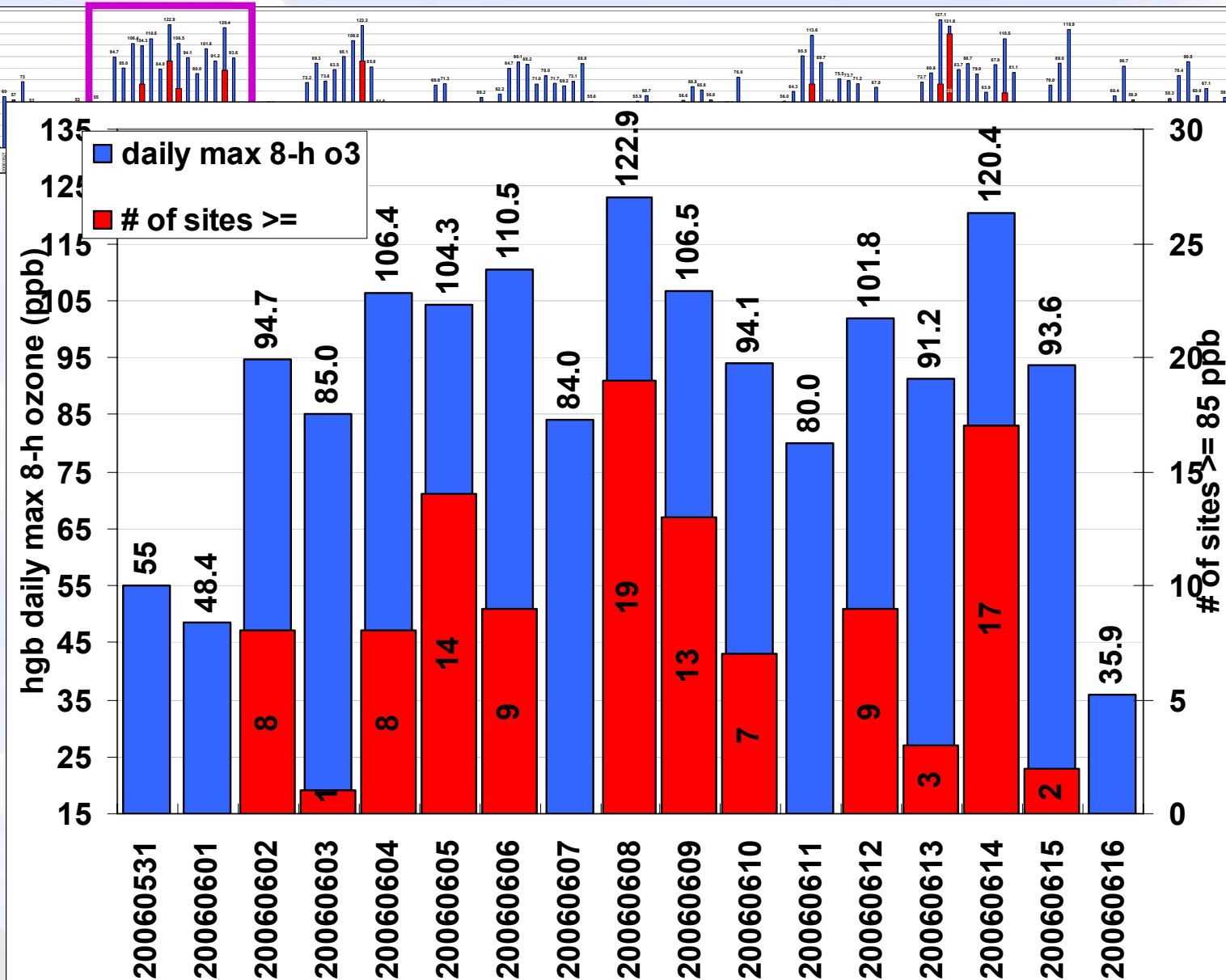
The 2006 Ozone Season in HGB



Sept.-Oct.



A Candidate 2006 Episode for HGB





Episode Characteristics

May 31 – June 16, 2006

Episode Date	Maximum Hourly Ozone		Maximum 8-Hour Ozone	
	Ozone (ppb)	# of Sites ≥ 125 ppb	Ozone (ppb)	# of Sites ≥ 85 ppb
5/31/2006	55.6	0	51.9	0
6/1/2006	67.4	0	48.4	0
6/2/2006	122.6	0	94.7	8
6/3/2006	105.8	0	85	1
6/4/2006	127.9	3	106.4	8
6/5/2006	127.7	3	104.3	14
6/6/2006	124.9	0	110.5	9
6/7/2006	100.2	0	84	0
6/8/2006	154.6	5	122.9	19
6/9/2006	129.9	1	106.5	13
6/10/2006	136.9	1	94.1	7
6/11/2006	92.9	0	80	0
6/12/2006	150.9	5	101.8	9
6/13/2006	116.2	0	91.2	3
6/14/2006	146.9	4	120.4	17
6/15/2006	116.3	0	93.6	2
6/16/2006	43.3	0	35.9	0

Flow Reversal

Flow Reversal

Flow Reversal

Flow Reversal

Steady (SW)

Flow Reversal

Flow Reversal

Steady (WNW)

Flow Reversal

Steady (N/NNE)

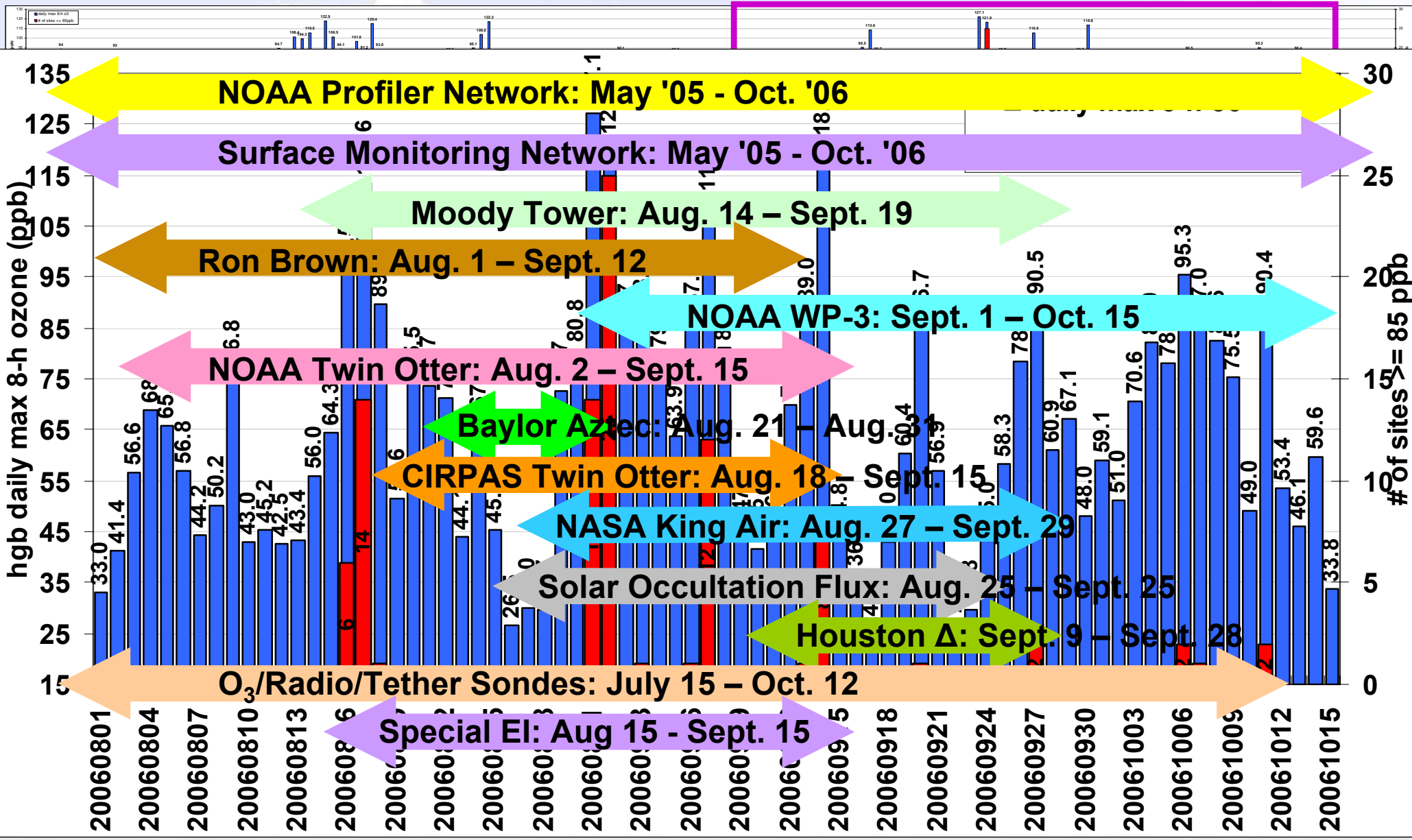
Steady (ENE)

Stagnation

Steady (SE)



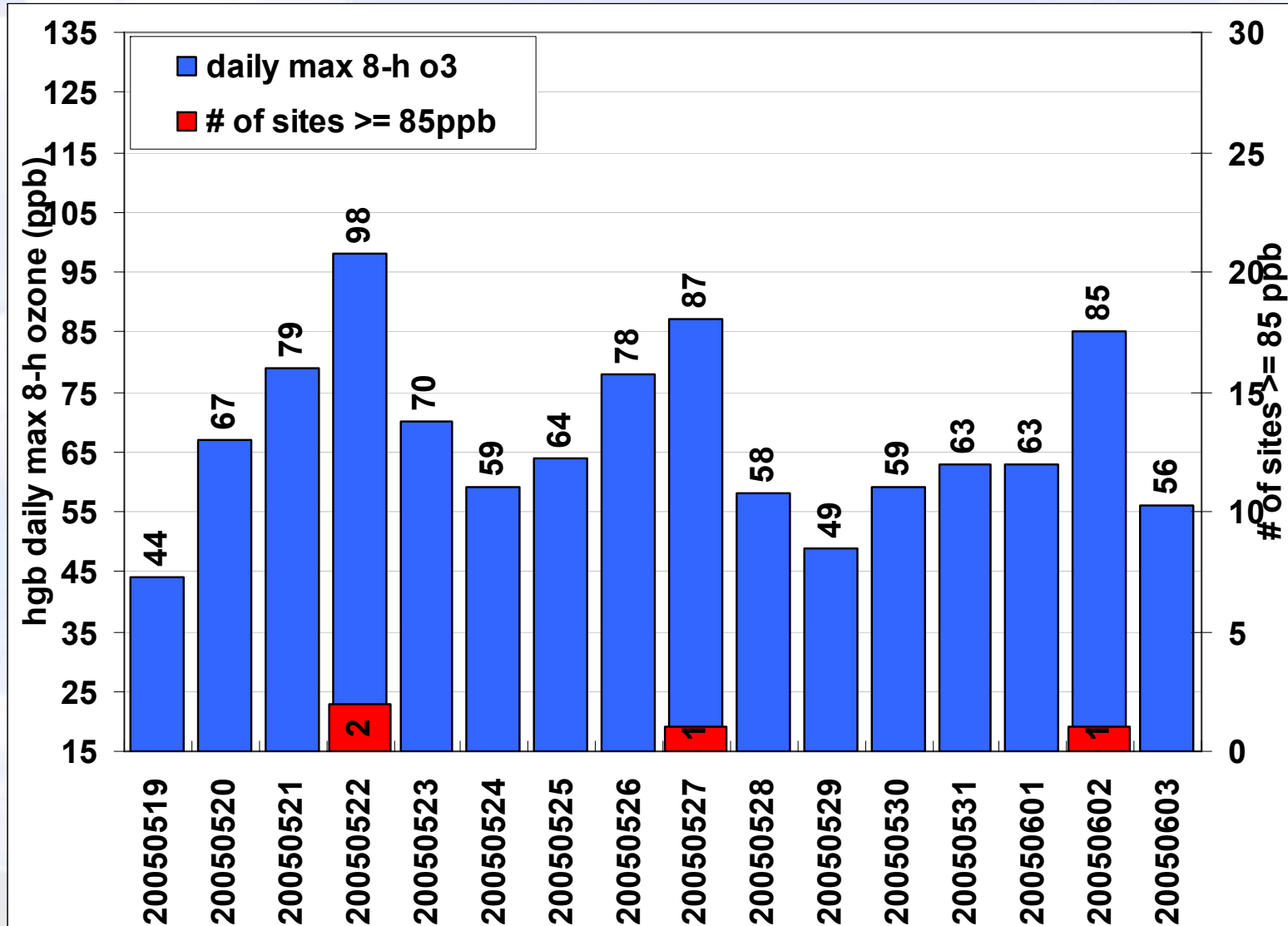
The TexAQs II Intensive Period





What About Beaumont?

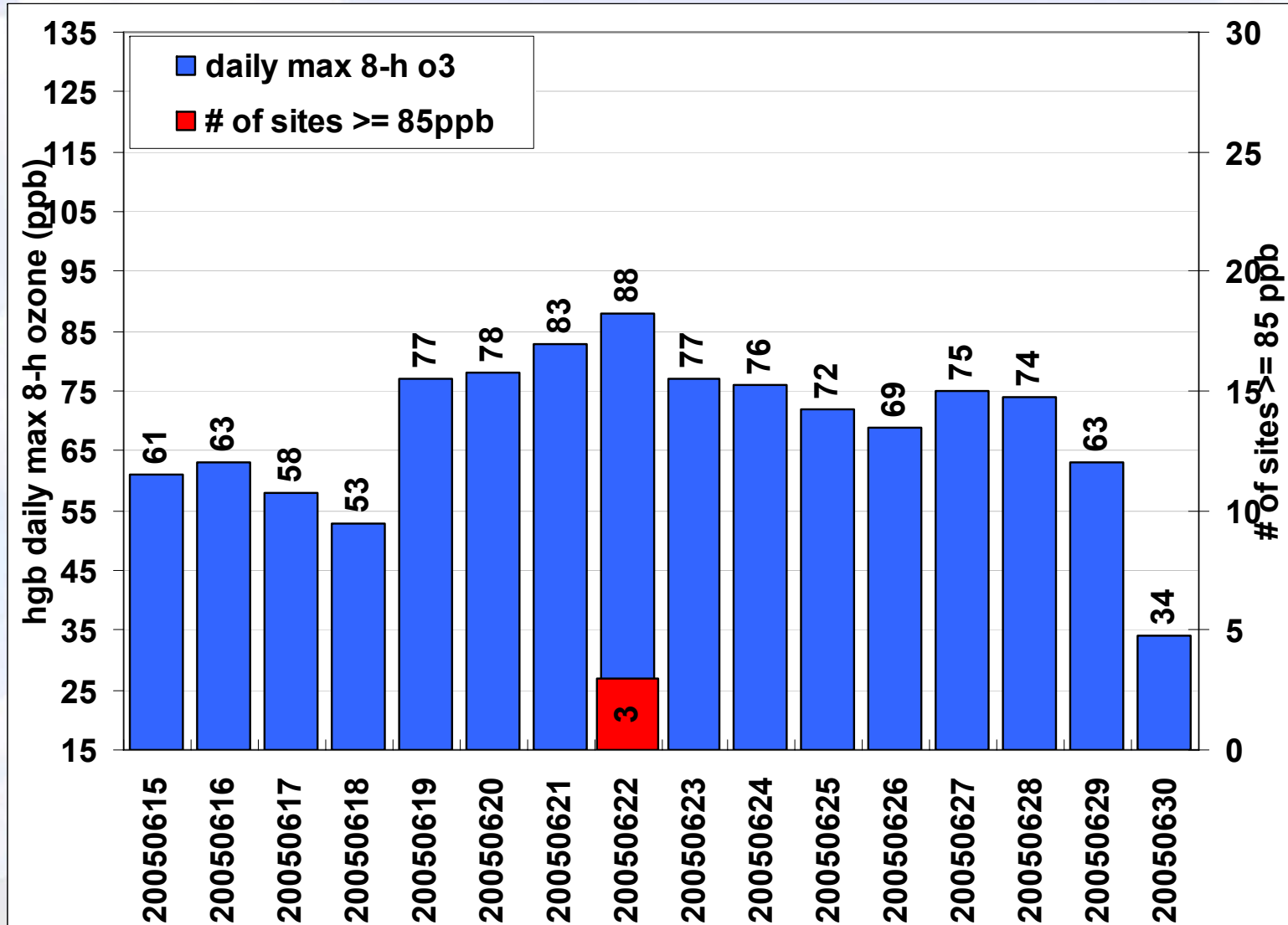
May 19 – June 3, 2005





What About Beaumont?

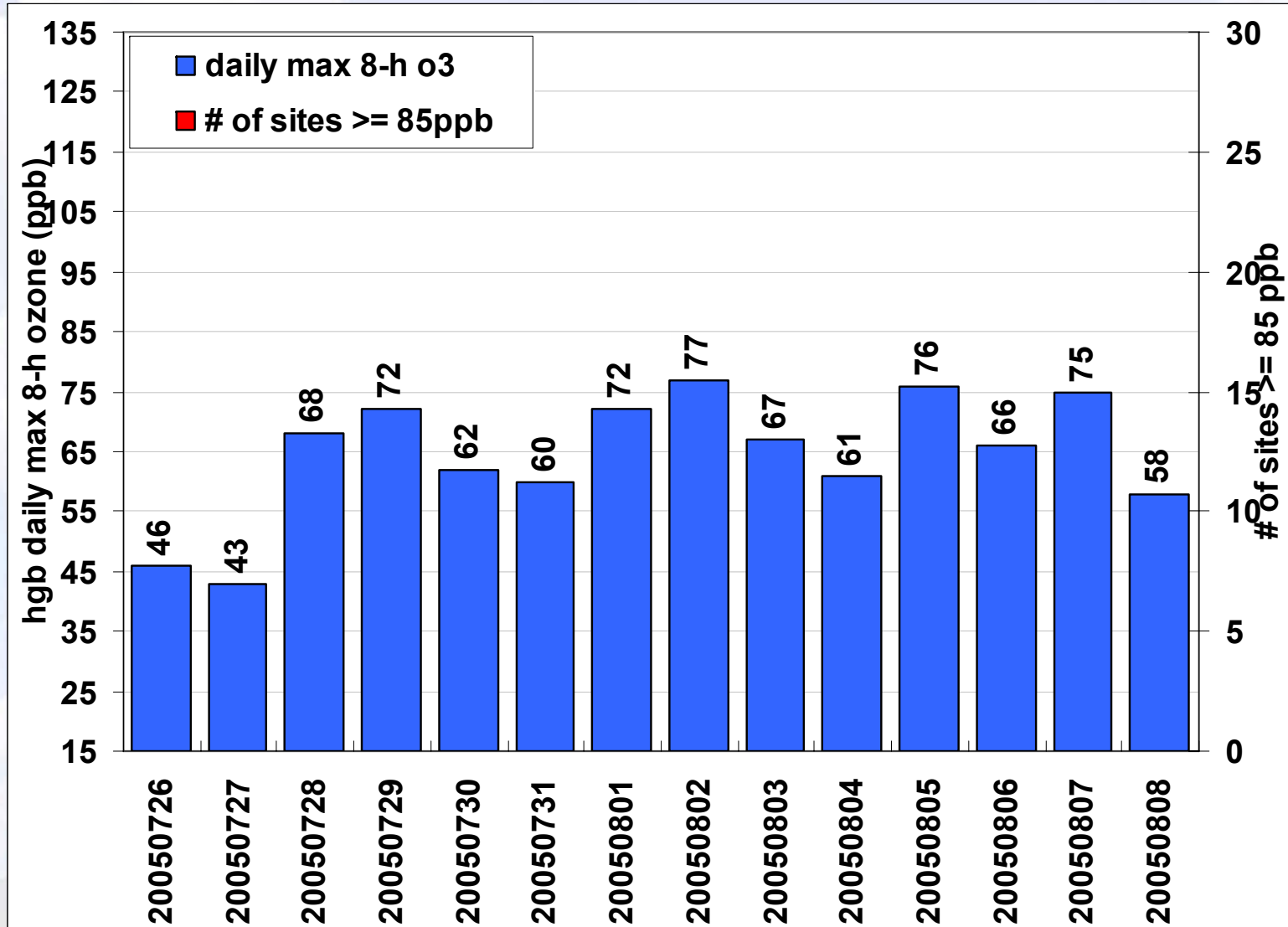
June 15 - 30, 2005





What About Beaumont?

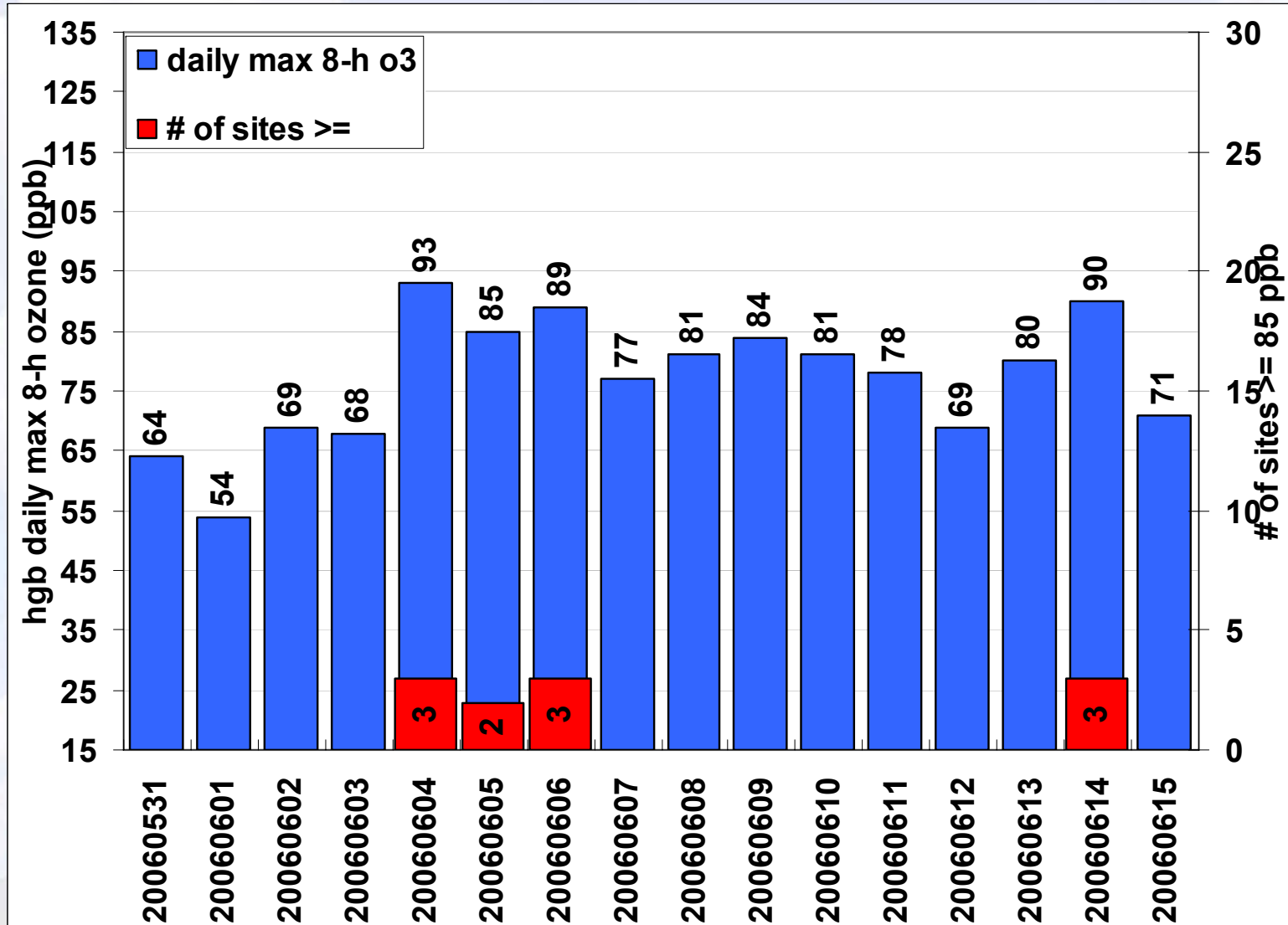
July 26 – Aug. 8, 2005





What About Beaumont?

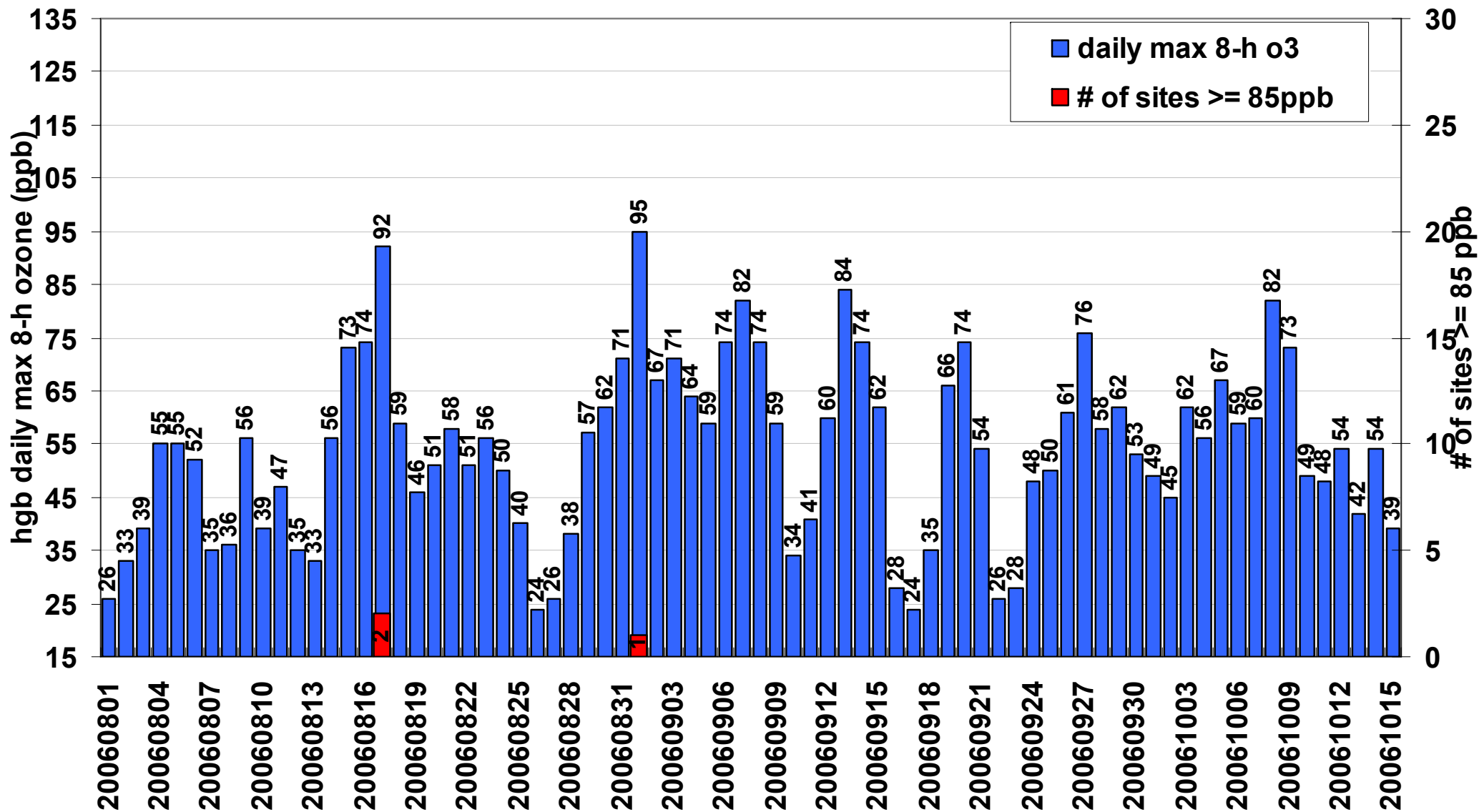
May 31 – June 15, 2006





What About Beaumont?

TexAQs II Intensive Period (Aug. 1 – Oct. 15, 2006)





Candidate Episode Summary

Episode	Number of 8-Hour Ozone Exceedance Days	
	HGB	BPA
5/19/05 - 6/3/05	8	3
6/15/05 - 6/30/05	10	1
7/26/05 - 8/8/05	8	0
5/31/06 - 6/16/06	12	4
8/01/06 - 10/15/08 (TexAQS II)	15	2



Next Steps

- **Develop Conceptual Descriptions for each candidate episode.**
- **Finalize selection of episodes to carry forward.**
- **Complete meteorological modeling for selected episodes.**
- **Develop detailed emission inventories for 2005, 2006.**
- **Base case photochemical model runs.**