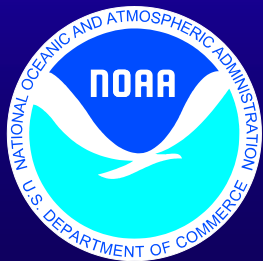


National Weather Service Statistical Guidance: Thunderstorms

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National Weather Service

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Friends/Partners in Aviation Weather Meeting
September 27, 2007



MDL Statistical Guidance

- Provides objective forecast guidance for sensible weather elements
- Guidance is
 - Probabilistic (MOS and LAMP) and deterministic (LAMP)
 - Station based
 - Gridded
- Products:
 - Text
 - Graphics
 - Binary Data (BUFR, GRIB2)

Model Output Statistics (MOS)

- MOS statistically relates sensible weather to output from Numerical Weather Prediction (NWP) Models
- MOS thunderstorm guidance
 - Probability of a thunderstorm in a 20-km or 40-km gridbox
 - Goes out 7 days at various projections
 - Valid over CONUS
 - Product for Alaska planned for May 2008
 - Runs 4 times a day (00, 06, 12, 18 UTC)

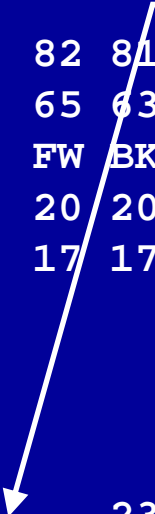
GFS MOS Alphanumeric Bulletin

KGRB	GFS MOS GUIDANCE																			9/21/2007 1200 UTC				
DT	/SEPT 21/SEPT 22					/SEPT 23					/SEPT 24													
HR	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	06	12			
N/X																			76		57			
TMP	82	81	73	67														4	75	67	60	60		
DPT	65	63	62	58														9	50	52	53	57		
CLD	FW	BK	BK	BK														L	CL	CL	CL	BK		
WDR	20	20	22	26														6	16	14	18	17		
WSP	17	17	15	14														1	10	07	06	05		
P06			26															4		4	4	14		
P12																			6			15		
Q06			0															0	0	0	0	0		
Q12							1					0			0			0			0	0		
T06		23/	3	17/32	1/	7	0/	3	0/	1	0/24	0/	5	0/	0	0/	2	6/	6					
T12				32/32			2/	7			0/24			0/	5			0/28						
POZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
POS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
TYP	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		
SNW							0								0							0		
CIG	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
VIS	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7		
OBV	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		

Thunderstorm Probabilities

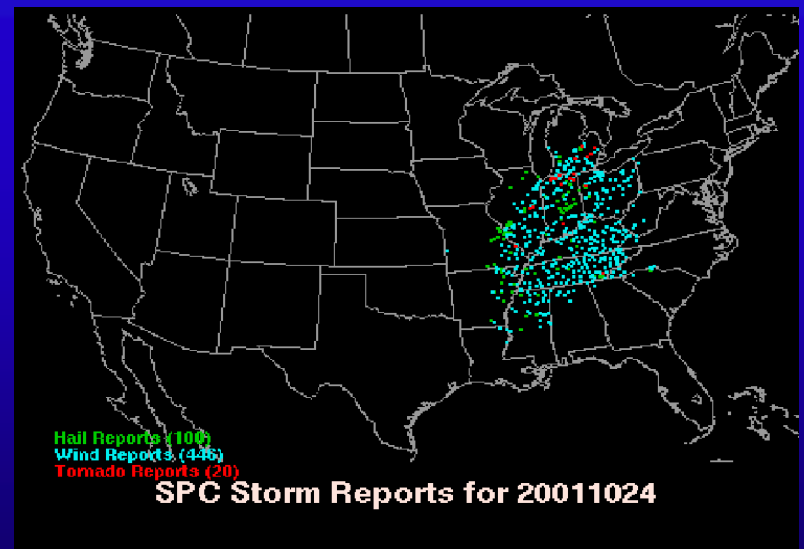
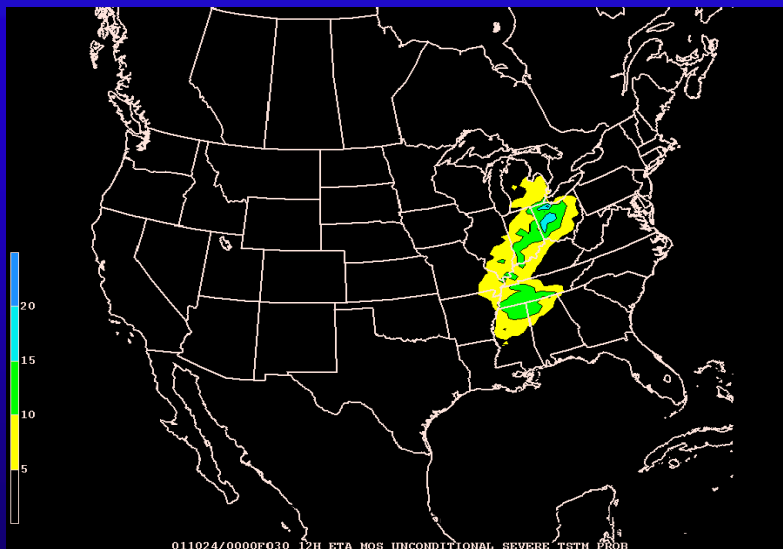
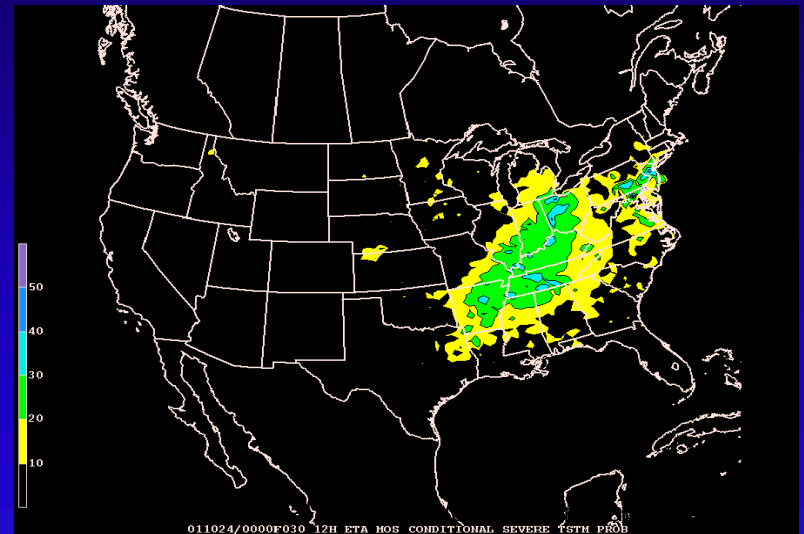
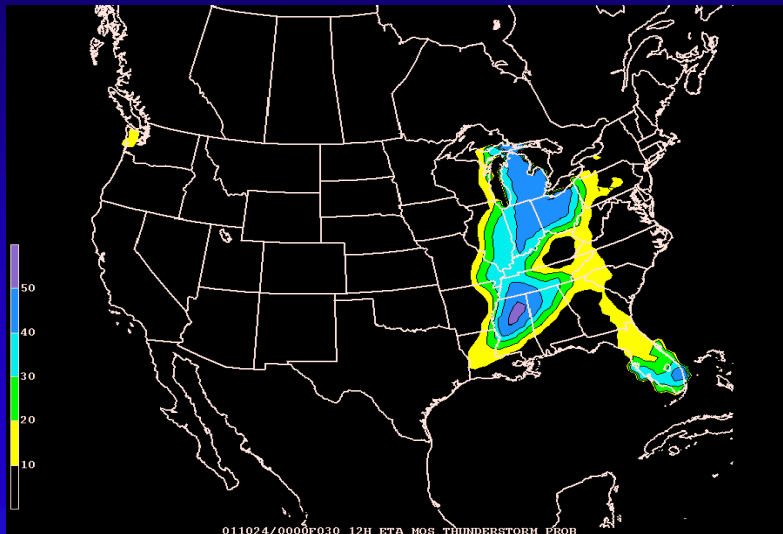
T06 – in a 6 hour period
T12 – in a 12 hour period

probability of thunderstorms/**conditional**
probability of severe thunderstorms



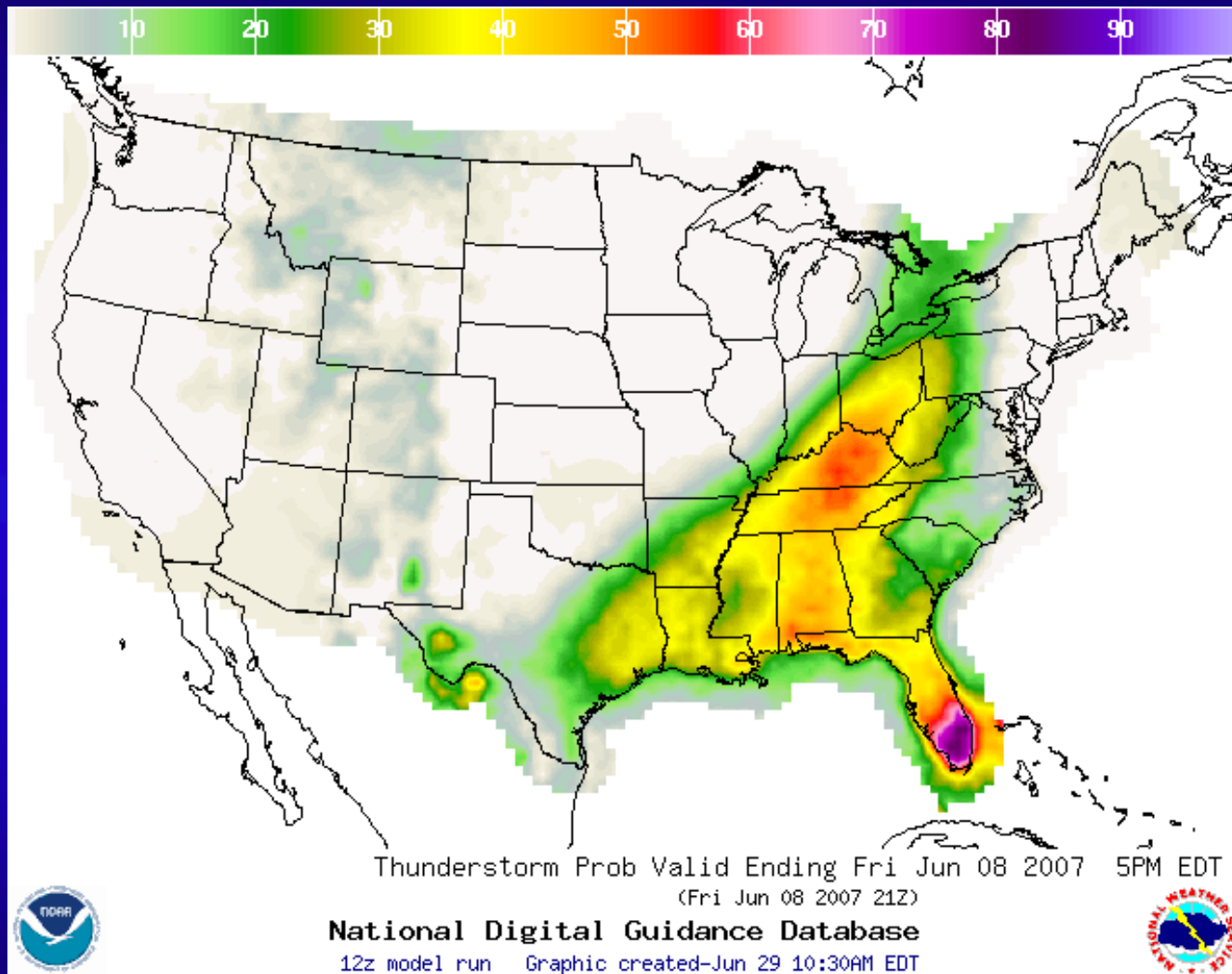
MOS thunderstorms

Conditional severe weather guidance



Given the occurrence of lightning, this is the probability of a severe thunderstorm event (wind, hail, tornado)

Gridded MOS Thunderstorm Products



GMOS 03h forecast
Available ~16:45 UTC
Valid 18-21 UTC

Localized Aviation MOS Program (LAMP)

- LAMP statistically relates sensible weather to output from MOS along with the most recent observations
- Acts as a rapid refresh update to MOS
- LAMP acts as a sophisticated interpolation between the observations and the MOS forecast
- LAMP thunderstorm guidance
 - Probability/Best Category Y/N of a thunderstorm occurrence in a 2-hour period in a 20-km gridbox
 - Goes out 25 hours in 2 hour projections
 - CONUS
 - Eventually will run 24 times a day (every hour)

Available LAMP cycles (UTC) in green:

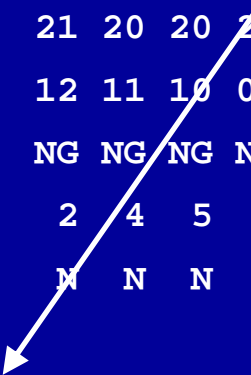
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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LAMP Alphanumeric Bulletin

KSRQ	GFS		LAMP				GUIDANCE				9/21/2007				1800 UTC										
UTC	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
TMP	86	86	84	83	82	80	79	78	77	77	77	76	76	75	75	75	75	75	77	79	81	82	83	84	85
DPT	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	73	73	73	73	73	73	73
WDR	21	20	20	20	19	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0
WSP	12	11	10	08	07	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
WGS	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
PPO	2	4	5	8	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
PCO	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
P06						26						34					48							61	
TP2			13	20	24	26	23	18		9	6	8	9	9	9	7	7	10							
TC2			N	N	N	Y	Y	Y		N	N	N	N	N	N	N	N	N							
CLD	BK	BK	BK	BK	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV
CIG	6	6	6	6	6	6	6	7	8	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5
CCG	6	6	6	5	6	5	6	7	7	6	6	7	7	6	6	7	6	5	6	8	6	4	4	5	5
VIS	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
CVS	7	2	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
OBV	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

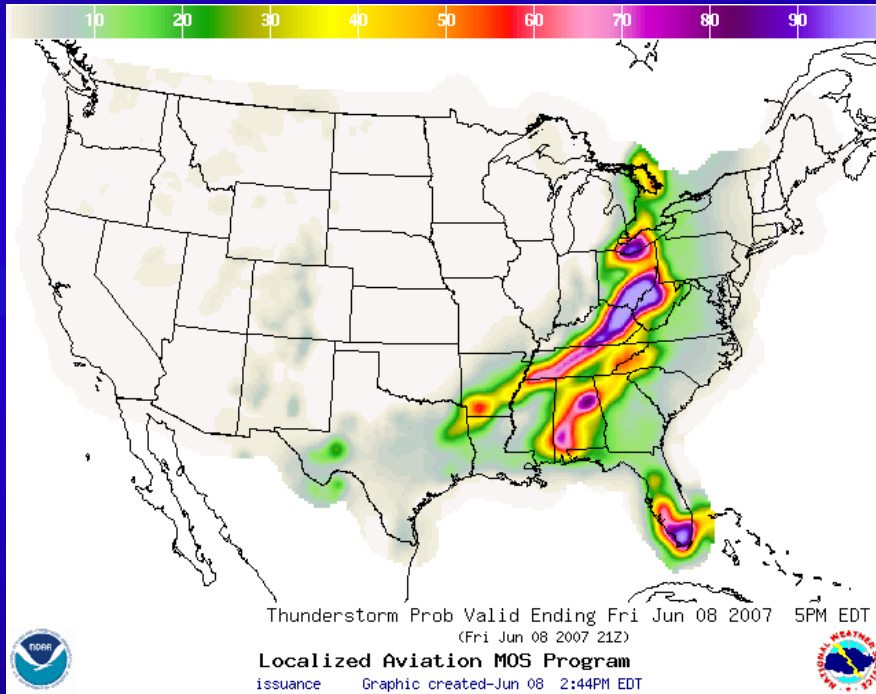
TP2 Probability of Thunderstorm Occurring in a 2-hour period

TC2 Best Category Y/N will thunderstorm occur in a 2-hour period

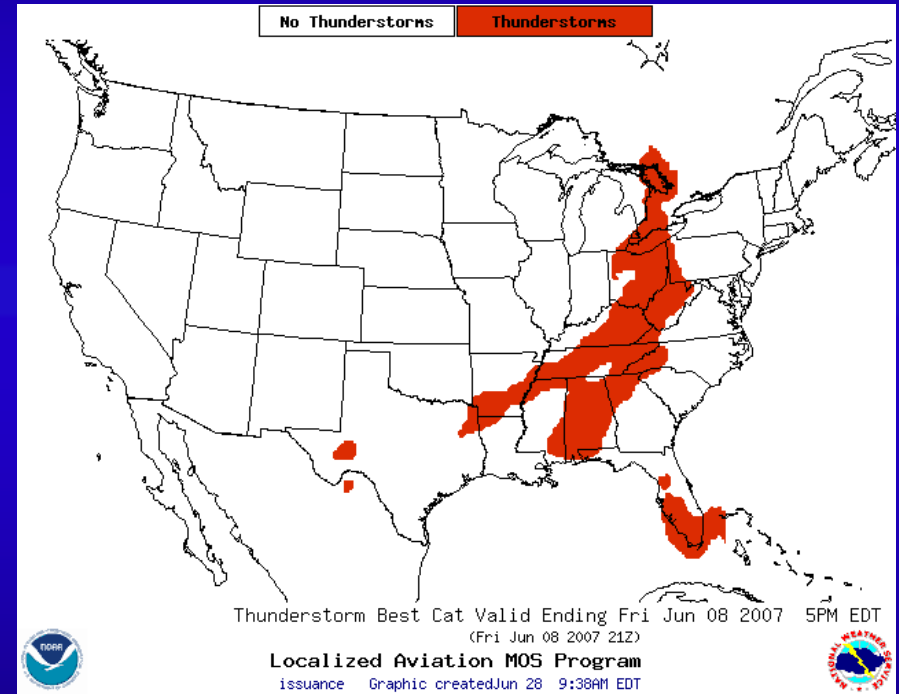


LAMP Thunderstorm Guidance Projections 1-3 hours

LAMP Probability of Thunderstorm



LAMP Y/N of Thunderstorm



LAMP 02h forecast
Available ~18:45 UTC
Valid 19-21 UTC

MOS and LAMP products

- All formats available on
 - SBN/NOAAPort
 - NWS FTP Server
- Text and Graphics available on NWS Website:
 - MOS Products
<http://www.nws.noaa.gov/mdl/synop/products.shtml>
 - LAMP Products
<http://www.nws.noaa.gov/mdl/lamp>
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 - MOS: Kathryn.Gilbert@noaa.gov
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