

VERIFICATION OF RIVER
STAGES DURING HURRICANE
KATRINA 8-29-2005

Kai Roth - LMRFC

Outline

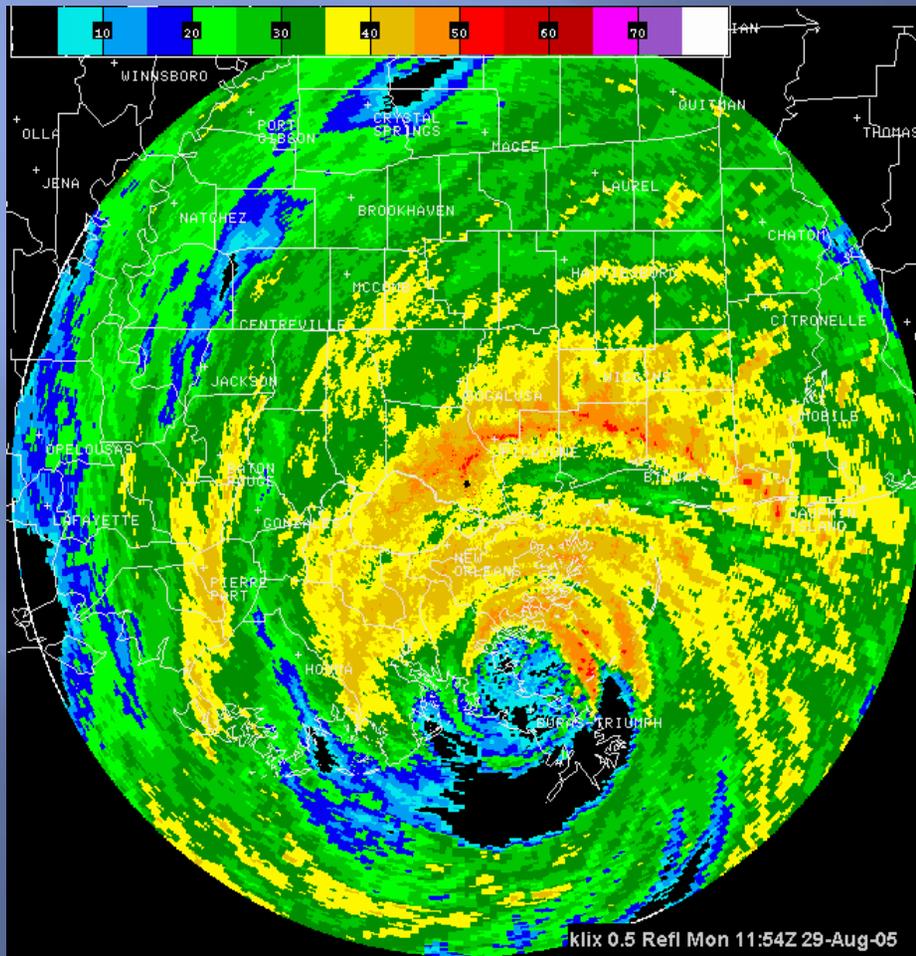
- ▣ Synopsis of Hurricane Katrina
- ▣ Rainfall Totals
- ▣ Storm Surge
- ▣ River Impacts
- ▣ Verification of Rivers
- ▣ Conclusions

Synopsis



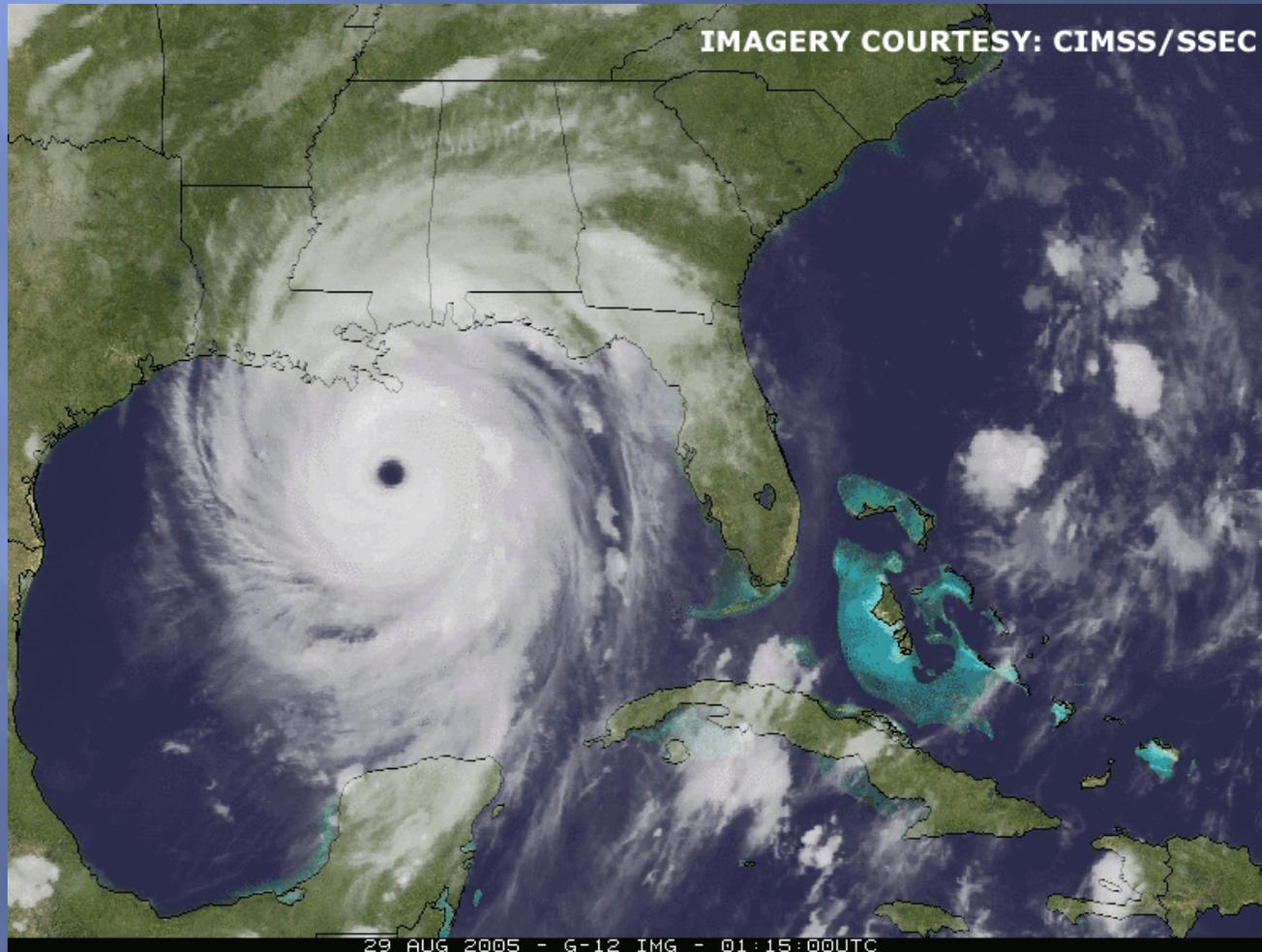
- ❑ Developed as a tropical depression on August 23.
- ❑ Category 1 at landfall North of Miami, FL
- ❑ Attained wind speeds of over 150 knots on Sunday August 28th.

Synopsis

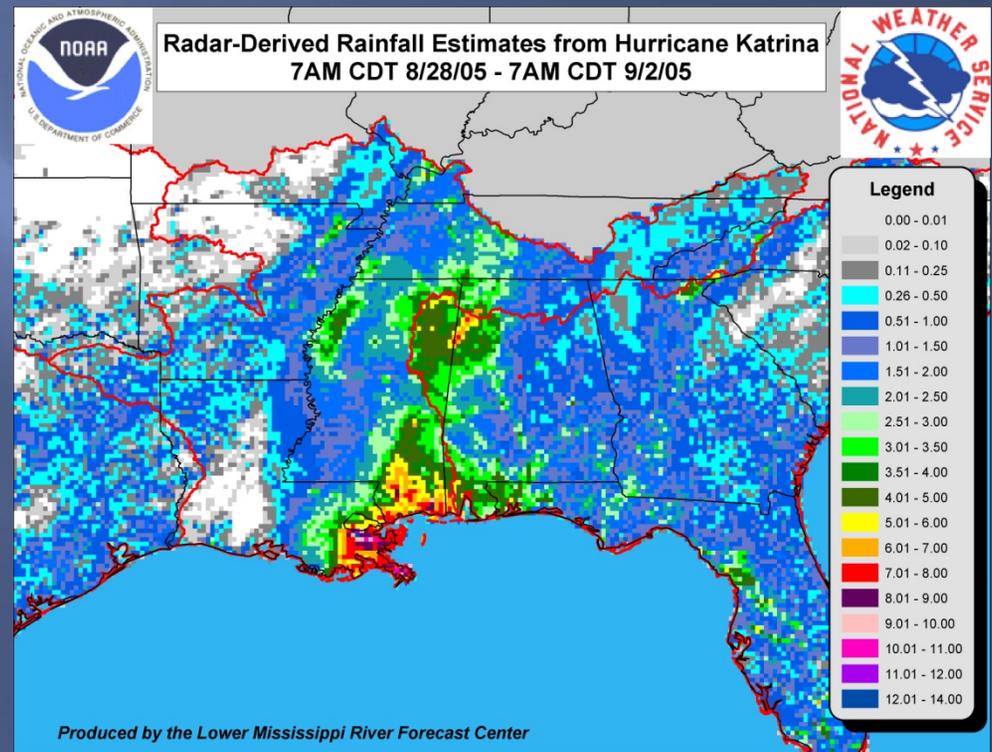
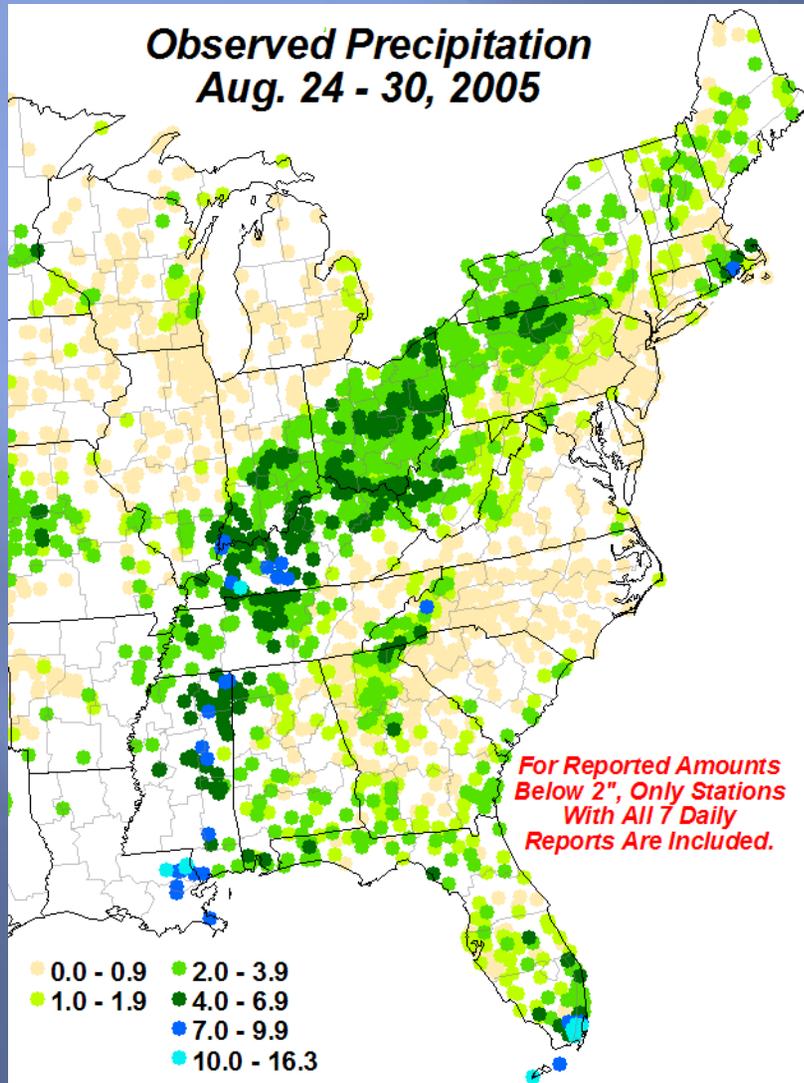


- ❑ Made landfall at Buras, LA August 29th with wind speeds of 110 knots.
- ❑ Central pressure of 920 mb (3rd lowest on record for an Atlantic land falling hurricane)
- ❑ Upwards of a 20 - 30 ft. storm surge.

Satellite Imagery of Katrina

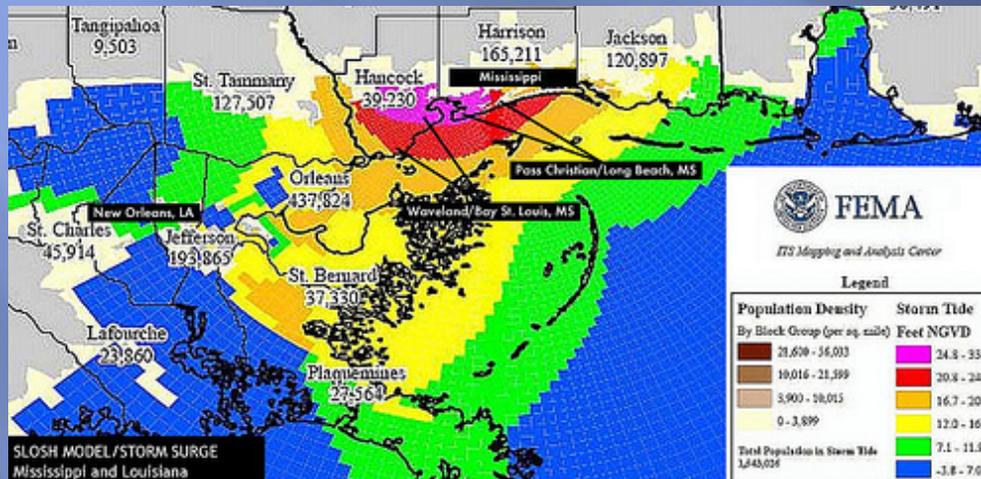


Rainfall Totals



Storm Surge

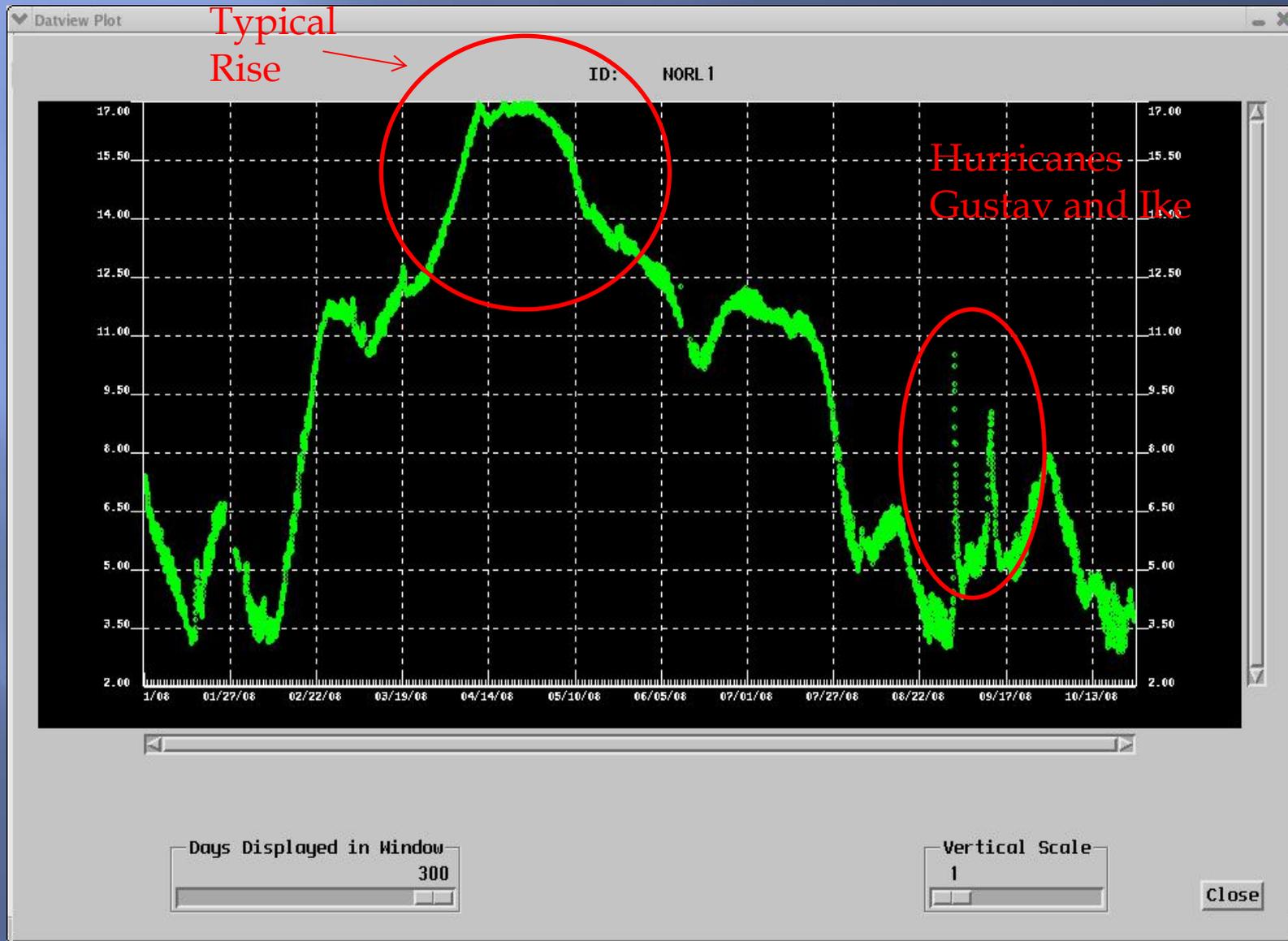
- ~30 ft storm surge along the MS gulf coast
- Upwards of 15 – 20 ft surge in the New Orleans area.



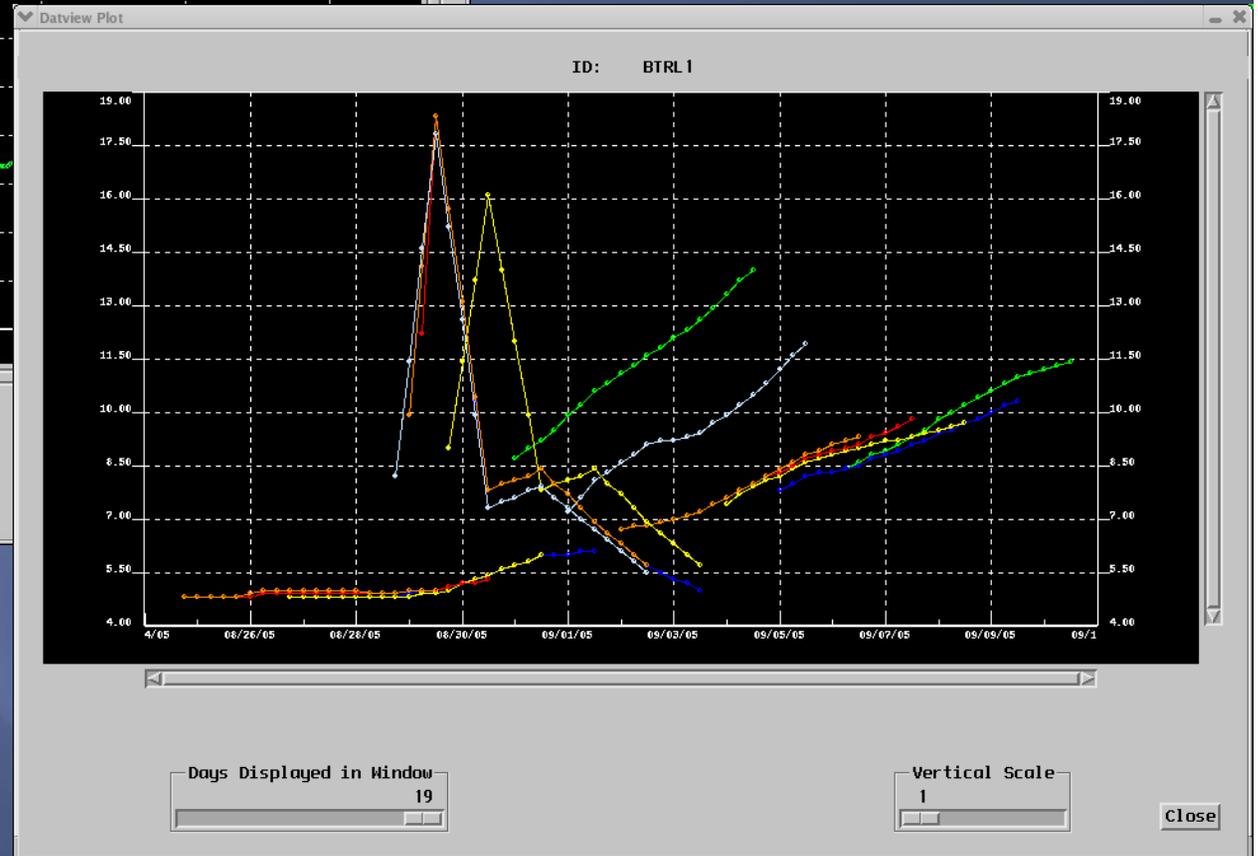
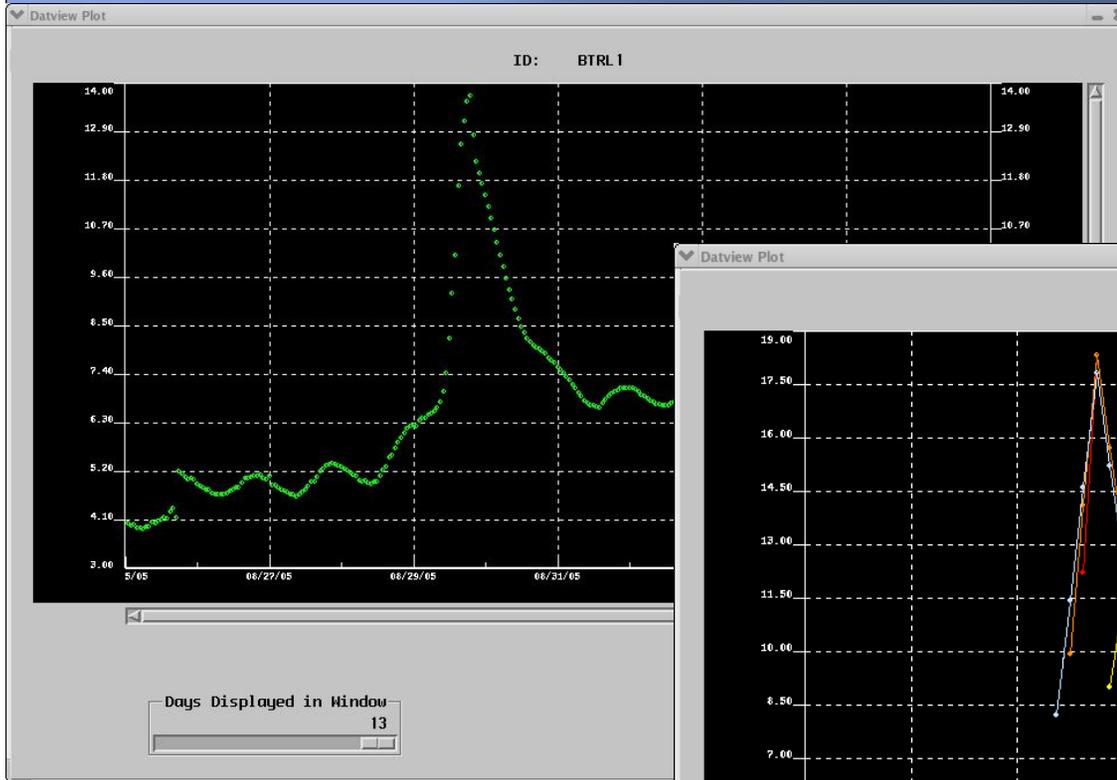
Location of Verification Points



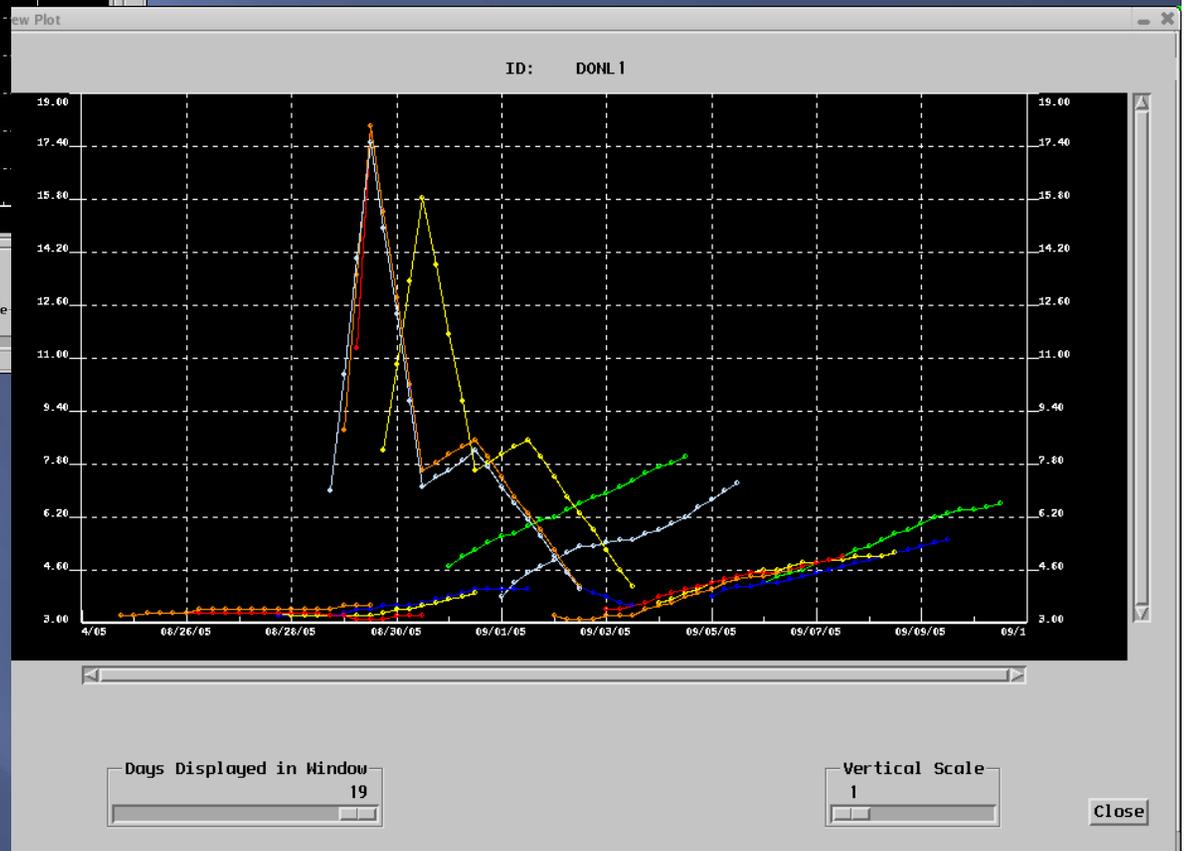
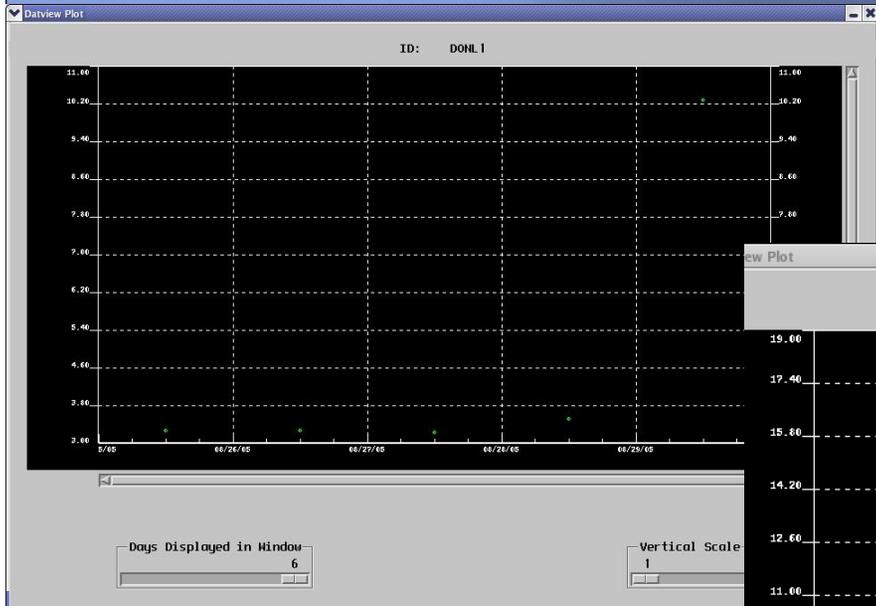
NORL1 2008 Hydrograph



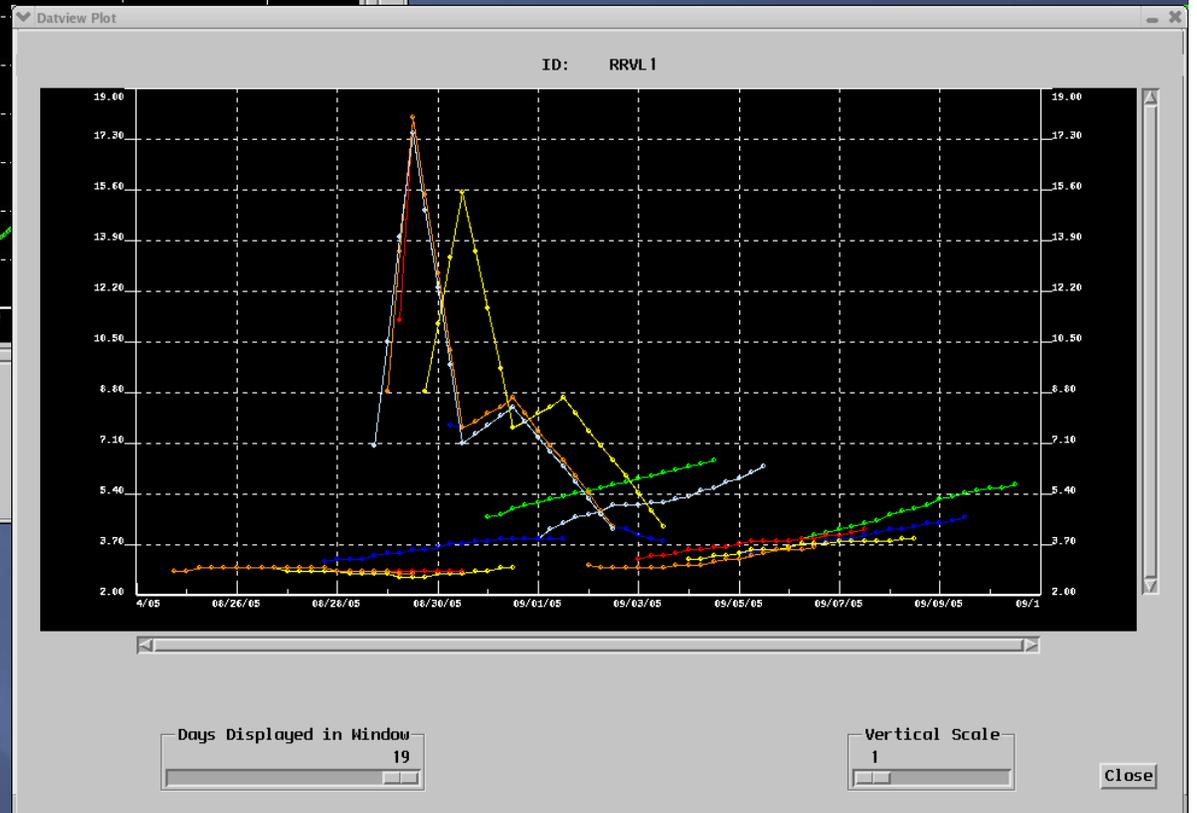
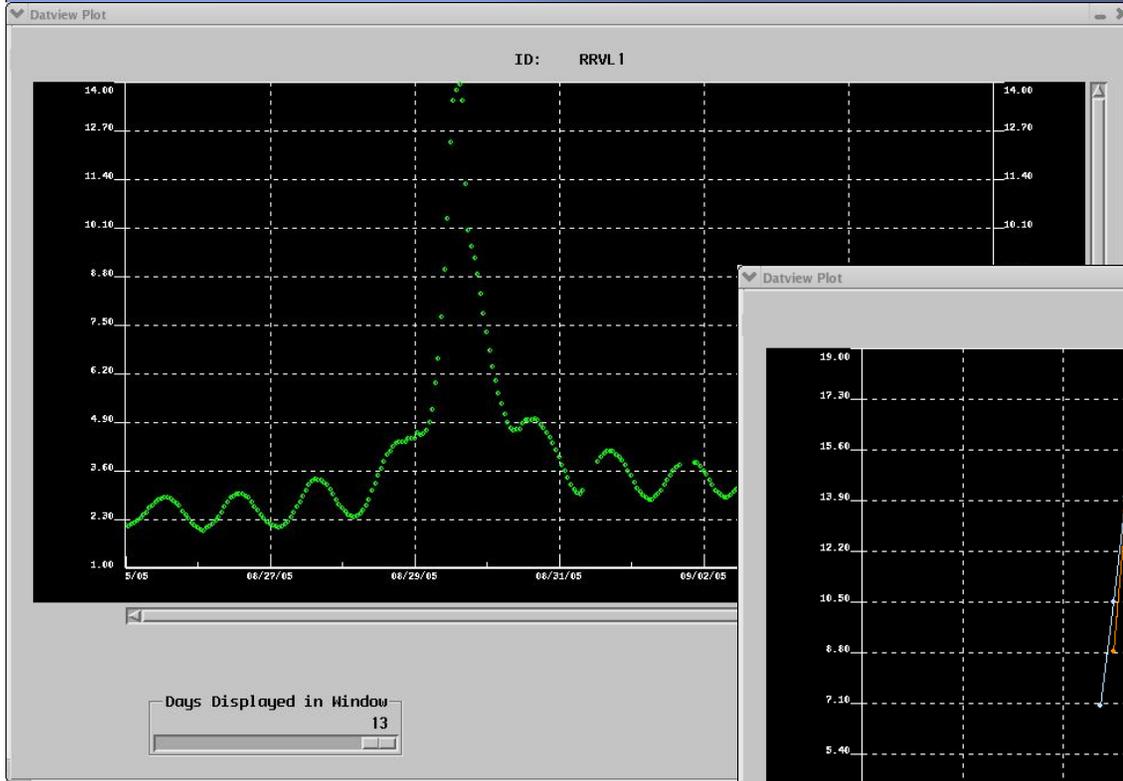
BTRL1 Hydrographs and Forecasts



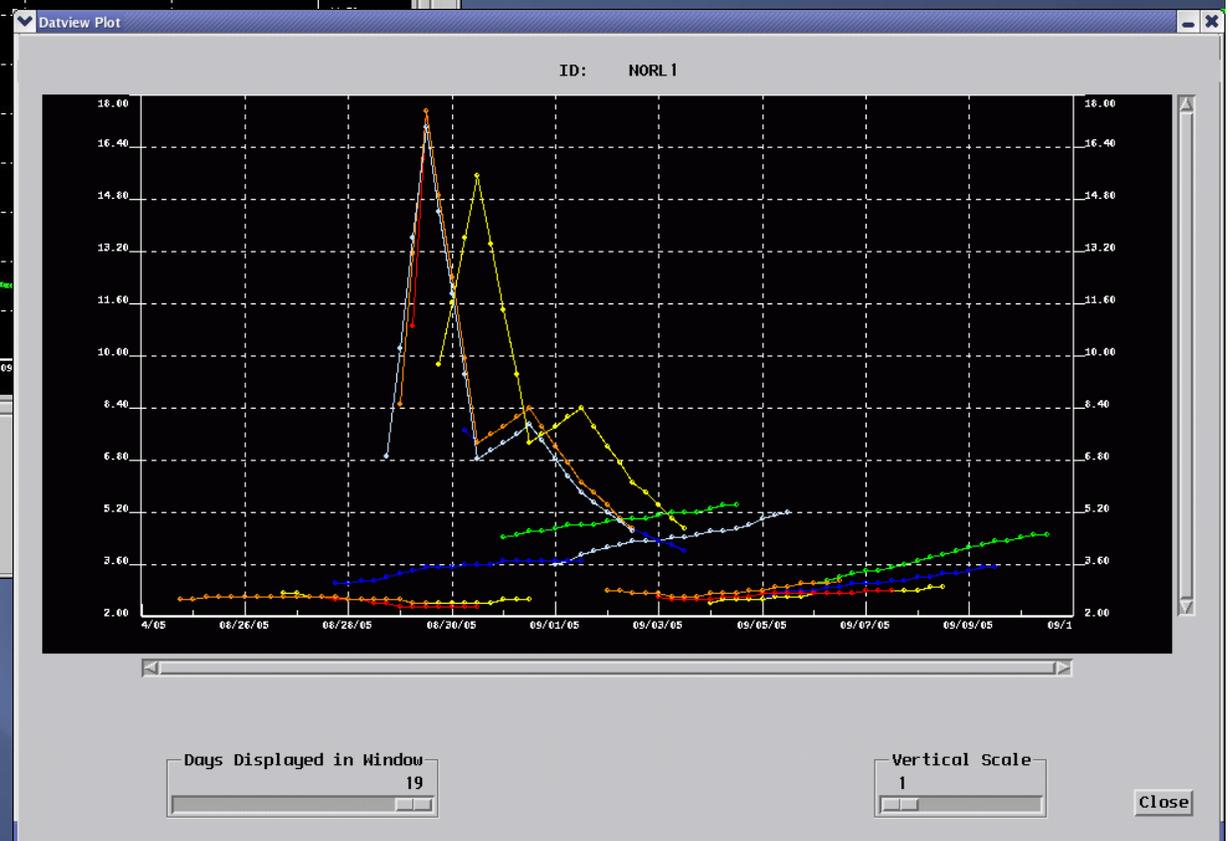
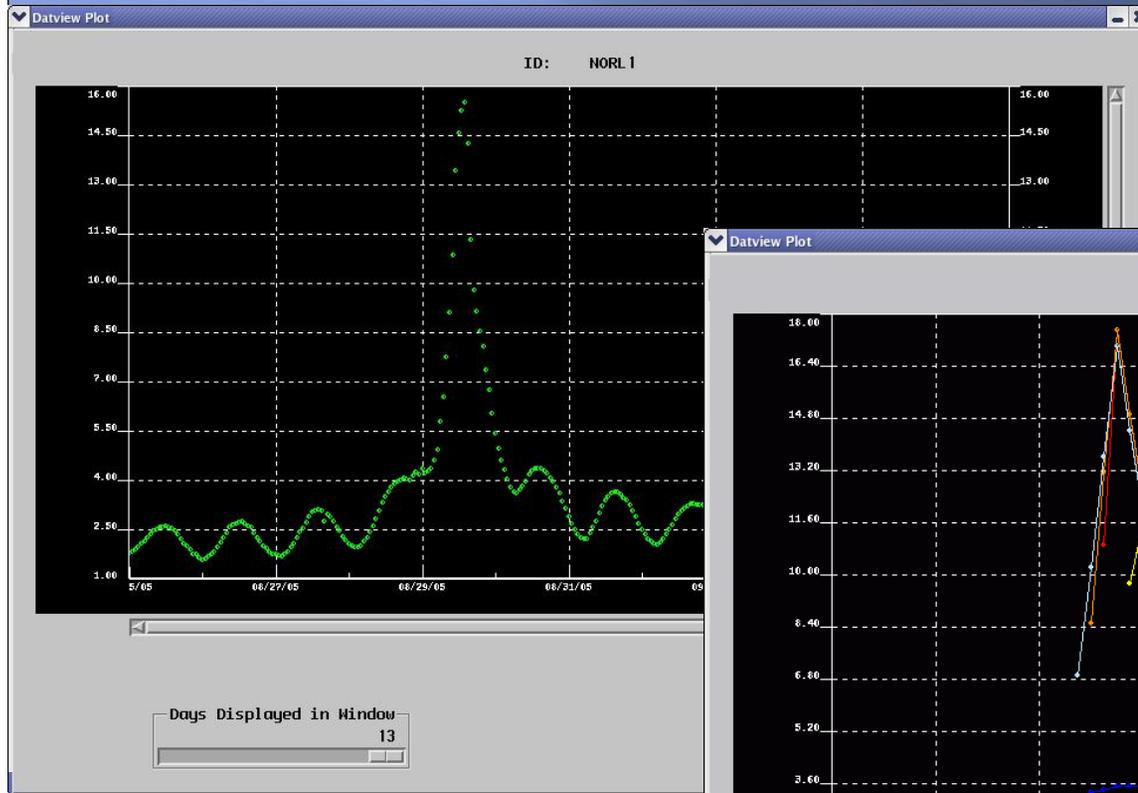
DONL1 Hydrograph and Forecasts



RRVL1 Hydrograph and Forecasts



NORL1 Hydrograph and Forecasts

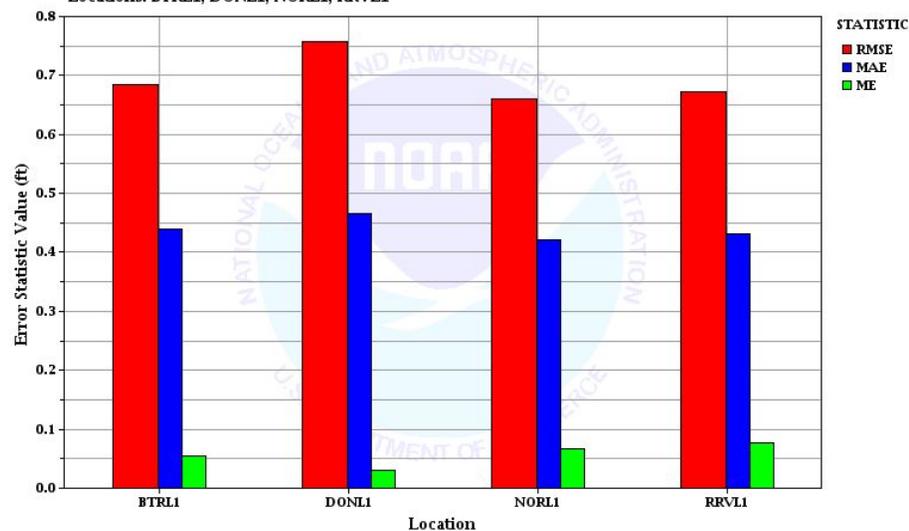


4 Year Record vs. Katrina

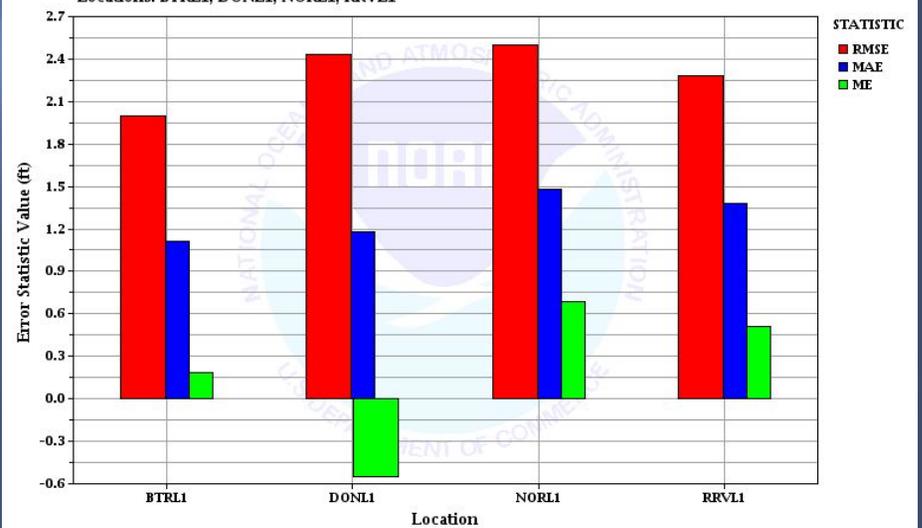
2004 - 2008

KATRINA

Plot of Instantaneous Height Error Statistics against Location for LMRFC
Time Period: 2004-04-01 00:00:00 GMT - 2008-08-31 23:59:59 GMT
Lead times: 0 hours - 120 hours
Locations: BTRL1, DONL1, NORL1, RRVL1



Plot of Instantaneous Height Error Statistics against Location for LMRFC
Time Period: 2005-08-20 00:00:00 GMT - 2005-09-10 23:59:59 GMT
Lead times: 0 hours - 120 hours
Locations: BTRL1, DONL1, NORL1, RRVL1

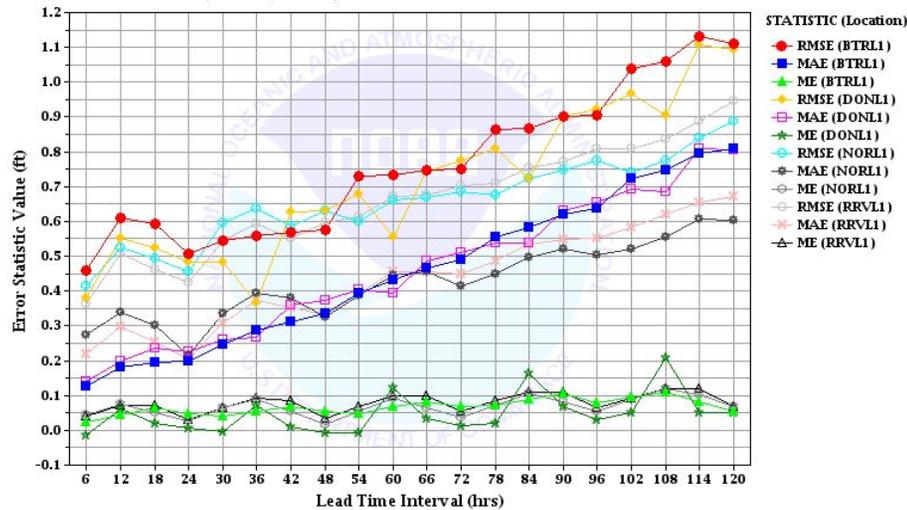


Lead-time Statistics

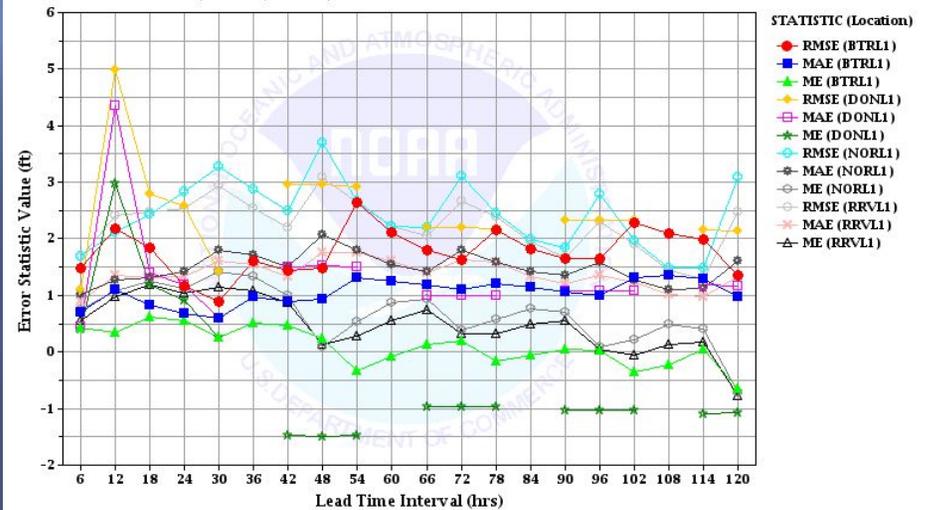
2004 - 2008

KATRINA

Plot of Instantaneous Height Error Statistics against Leadtime Interval for LMRFC
Compared Over Location
Time Period: 2004-04-01 00:00:00 GMT - 2008-08-31 23:59:59 GMT
Lead times: 0 hours - 120 hours
Locations: BTRL1, DONL1, NORL1, RRVL1



Plot of Instantaneous Height Error Statistics against Leadtime Interval for LMRFC
Compared Over Location
Time Period: 2005-08-20 00:00:00 GMT - 2005-09-10 23:59:59 GMT
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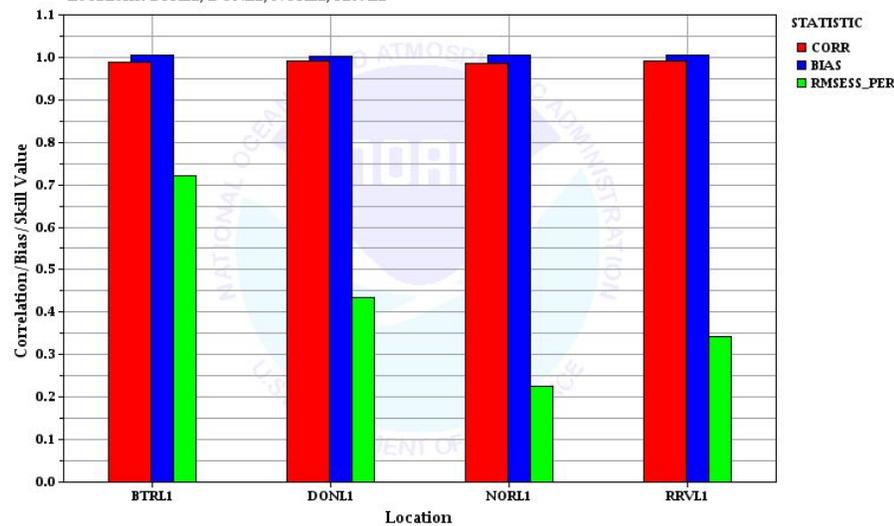


Correlation, Bias, and Skill

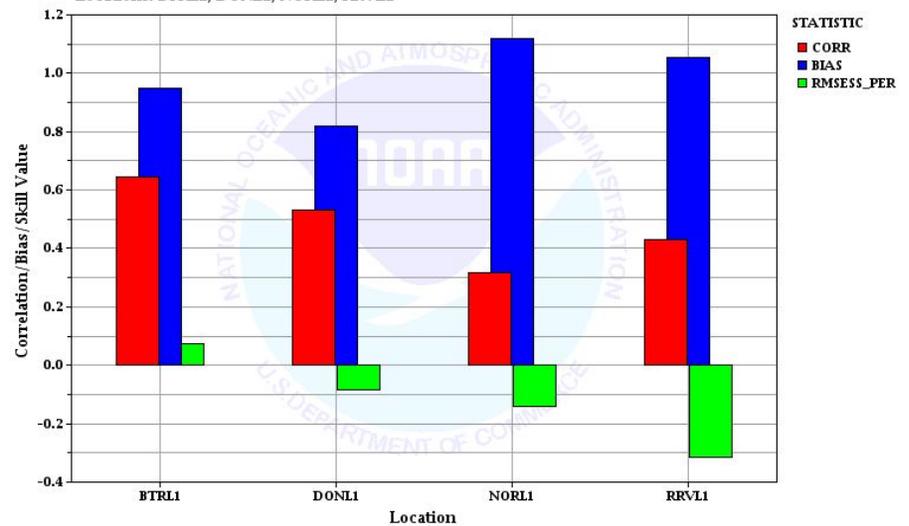
2004 - 2008

KATRINA

Plot of Instantaneous Height Correlation, Bias, and/or Skill against Location for LMRFC
Time Period: 2004-04-01 00:00:00 GMT - 2008-08-31 23:59:59 GMT
Lead times: All lead times included
Locations: BTRL1, DONL1, NORL1, RRVL1

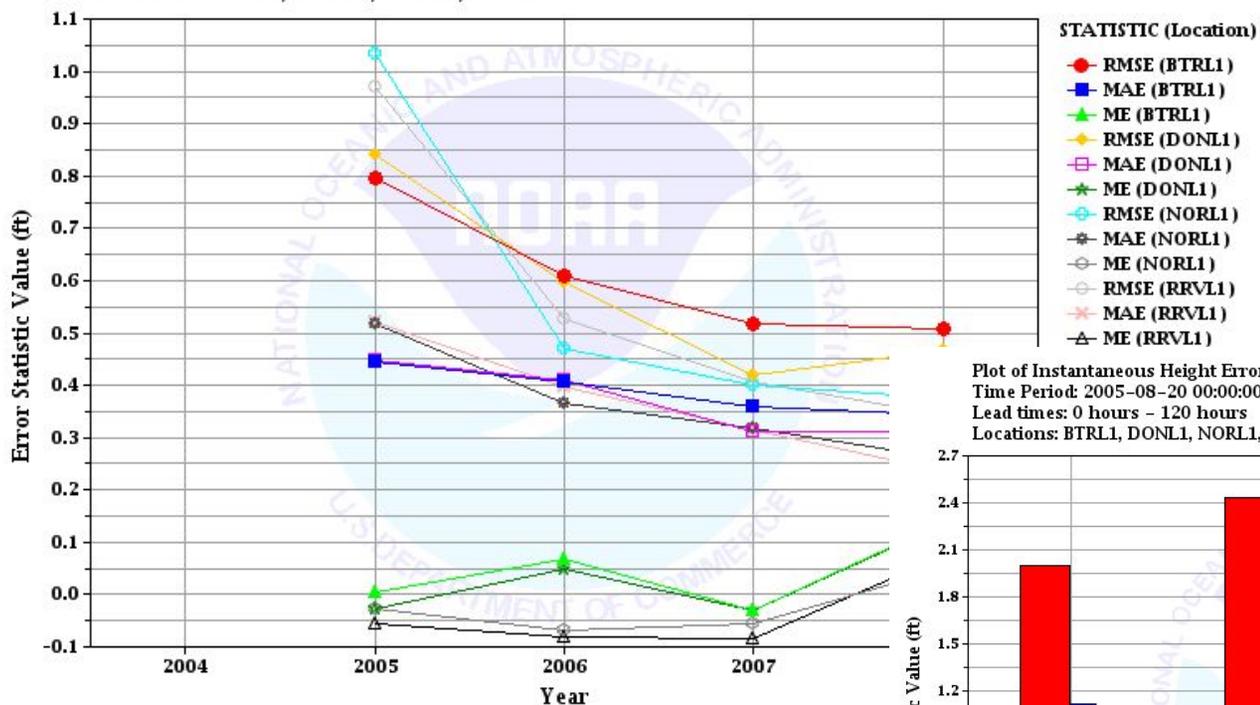


Plot of Instantaneous Height Correlation, Bias, and/or Skill against Location for LMRFC
Time Period: 2005-08-20 00:00:00 GMT - 2005-09-10 23:59:59 GMT
Lead times: All lead times included
Locations: BTRL1, DONL1, NORL1, RRVL1

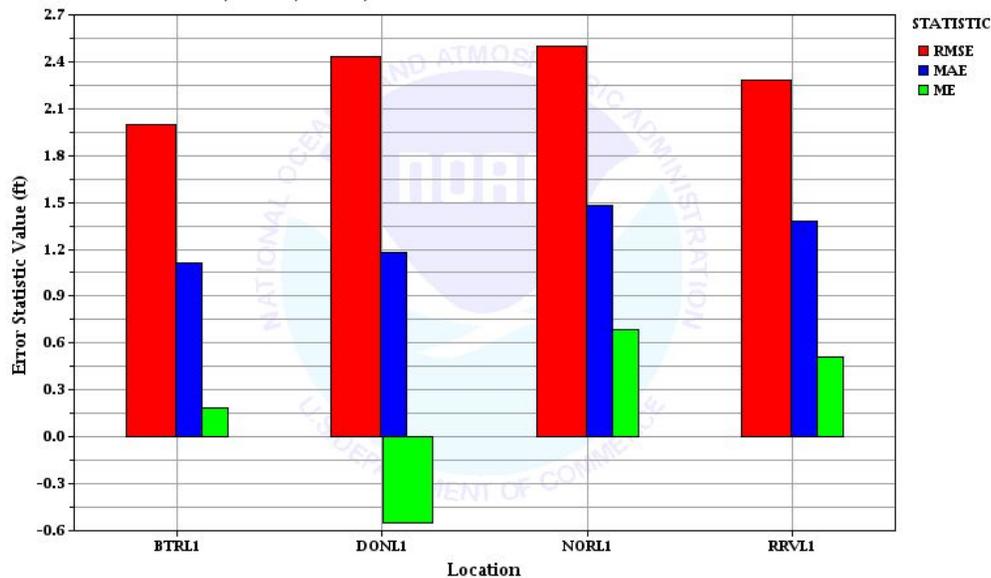


Forecast Trend Over Time

Plot of Instantaneous Height Error Statistics against Analysis Interval for LMRFC
 Compared Over Location
 Time Period: 04-01 00:00:00 GMT - 08-31 23:59:59 GMT for years 2004 - 2008
 Lead times: 0 hours - 120 hours
 Locations: BTRL1, DONL1, NORL1, RRVL1



Plot of Instantaneous Height Error Statistics against Location for LMRFC
 Time Period: 2005-08-20 00:00:00 GMT - 2005-09-10 23:59:59 GMT
 Lead times: 0 hours - 120 hours
 Locations: BTRL1, DONL1, NORL1, RRVL1









Conclusions

- ▣ Forecasts between 2004-2008 verified better than forecasts for Katrina due to Storm surge issue.
- ▣ The difference in obs vs. forecasts at N.O. was greater than upstream points because the storm surge affected that point more than the ones further up.

QUESTIONS?

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