0.1 1985-01

1. Problems
   (a) Spirit held up 1985 so it had to be restarted manually
2. Results
   (a) Level 1
      i. - Map
         A. - Max = 14.01-m, Mean = 5.44-m, U10 = 29.21-m/s
      ii. - Validation
         A. - Mean period was bias low for almost every buoy for the month. A couple of the buoys had low model estimations in wave hieght especially for the peaks. **NOT A VERY GOOD MONTH**
   (b) Level 2
      i. - Map
         A. - Max = 9.42-m, Mean = 4.38-m, U10 = 28.83-m/s
      ii. - Validation
         A. - Similar to level 1
   (c) Level 3N
      i. - Map
         A. - Max = 5.86-m, Mean = 2.93-m, U10 = 21.28-m/s
      ii. - Validation
         A. - 44005- Wave heights low for entire months. Peak wave heights were under-estimated by 2-m at some points. Mean period was low entire month too.
         B. - 44007 - Low waves during month but model estimation was pretty good. Mean period was low for the model.
         C. - 44011 - Negative bias on wave height and mean period for the month.
         D. **NOT GOOD**
   (d) Level 3C
      i. - Map

A. - Max = 5.24-m, Mean = 2.73-m, U10 = 20.28-m/s

ii. - Validation

A. - NONE

(e) Level 3S1

i. - Map

A. - Max = 5.24-m, Mean = 2.70-m, U10 = 19.27-m/s

ii. - Validation

A. - None

(f) Level 3S2

i. - Map

A. - Max = 4.98-m, Mean = 2.28-m, U10 = 16.42-m/s

ii. - Validation

A. - None

0.2 1985-02

1. Problems

   (a) No issues running

2. Results

   (a) Level 1

   i. - Map

   A. - Max = 14.26-m, Mean = 5.05-m, U10 = 28.37-m/s

   ii. - Validation

   A. - Two wave height peaks, the 9th and 13th, were underestimated by the model by 3-m at some buoys. The mean period was consitantly low for the model throughout the month.

   (b) Level 2

   i. - Map

   A. - Max = 7.04-m, Mean = 3.37-m, U10 = 24.16-m/s

   ii. - Validation

A. - Similar to level 1

(c) Level 3N

i. - Map

A. - Max = 6.42-m, Mean = 2.44-m, U10 = 23.56-m/s

ii. - Validation

A. - 44005 - Negative bias is both wave height and mean period throughout the month. Max peak of 7-m was under-estimated by 2-m.

B. - 44007 - Big under-estimation of the wave heights during the event on the 13th. The buoy measured 6-m wave heights and the model estimated 4-m. The mean period was off all month

(d) Level 3C

i. - Map

A. - Max = 5.92-m, Mean = 2.23-m, U10 = 22.64-m/s

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 5.62-m, Mean = 2.20-m, U10 = 22.64-m/s

ii. - Validation

A. - None

(f) Level 3S2

i. - Map

A. - Max = 4.10-m, Mean = 2.23-m, U10 = 15.78-m/s

ii. - Validation

A. - None

0.3 1985-03

1. Problems

(a) No issues running

2. Results

(a) Level 1

i. - Map

A. - Max = 10.55-m, Mean = 4.66-m, U10 = 27.45-m/s

ii. - Validation

A. - The trend is an under-estimation of consecutive wave height events between the 13th and the 22nd. The mean period tends to still be low throughout the month.

(b) Level 2

i. - Map

A. - Max = 8.49-m, Mean = 3.39-m, U10 = 27.57-m/s

ii. - Validation

A. - Similar to level 1

(c) Level 3N

i. - Map

A. - Max = 5.05-m, Mean = 2.22-m, U10 = 18.73-m/s

ii. - Validation

A. - 44005- Negative bias throughout month for both wave height and mean period. Missed a few peaks by 2-m.

B. - One peak of 4-m in wave height was under-estimated by 2-m by the model.

C. - Better fit than 44005, but stil under-estimated the wave height for most of the month. The mean period estimated by the model was low for the month too.

(d) Level 3C

i. - Map

A. - Max = 4.61-m, Mean = 2.11-m, U10 = 18.42-m/s

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 3.86-m, Mean = 2.08-m, U10 = 17.01-m/s

ii. - Validation

A. - Decent fit through the month is both wave height and mean period. Slight under-estimation in mean period later in the month.

(f) Level 3S2

i. - Map

A. - Max = 3.76-m, Mean = 1.97-m, U10 = 14.51-m/s

ii. - Validation

A. - None

0.4 1985-04

1. Problems

   (a) No issues running

2. Results

   (a) Level 1

   i. - Map

   A. - Max = 13.03-m, Mean = 3.84-m, U10 = 26.72-m/s

   ii. - Validation

   A. - Under-estimated every significant peak in wave height by more than 1-m.

   (b) Level 2

   i. - Map

   A. - Max = 6.68-m, Mean = 2.86-m, U10 = 25.01-m/s

   ii. - Validation

   A. - Similar to level 1

   (c) Level 3N

   i. - Map

   A. - Max = 4.62-m, Mean = 1.69-m, U10 = 18.33-m/s

   ii. - Validation

A. - 44005- 2 peaks in wave heights were under-estimated by the model by more than 2-m. The rest of the month looks good in wave height and mean period is a decent fit.

B. - 44007 - Other than the peak on the 1st being under-estimated in wave height, the model estimates were pretty close to the measured data.

C. - 44011- under-estimated both peaks in measured wave height data by ¿ 1-m. Mean period looks good.

(d) Level 3C

i. - Map

A. - Max = 4.85-m, Mean = 1.70-m, U10 = 19.15-m/s

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 4.13-m, Mean = 1.67-m, U10 = 15.97-m/s

ii. - Validation

A. - 41002- good fit overall. Under-estimated peak on the 14th and missed the decay in wave height. Mean period was low during this event too.

(f) Level 3S2

i. - Map

A. - Max = 4.07-m, Mean = 1.80-m, U10 = 14.20-m/s

ii. - Validation

A. - None

0.5 1985-05

1. Problems

   (a) No issues runnning

2. Results

   (a) Level 1

i. - Map

A. - Max = 9.34-m, Mean = 2.97-m, U10 = 24.67-m/s

ii. - Validation

A. - One event on the 4th was under-estimated in wave height at most buoys. The mean period was consitantly low, again.

(b) Level 2

i. - Map

A. - Max = 5.26-m, Mean = 2.07-m, U10 = 21.73-m/s

ii. - Validation

A. - Similar to level 1

(c) Level 3N

i. - Map

A. - Max = 3.72-m, Mean = 1.48-m, U10 = 21.24-m/s

ii. - Validation

A. - 44005- under-estimated peak on the 4th by 2-m in wave height. Mean period looks good.

B. - 44007 - Phase issues in both wave height and mean period all month. Wind speeds are low compared to the measured.

C. - 44011 - Under-estimated peak on the 4th by 1-m with the rest of the month looking pretty good. Mean period was low all month.

(d) Level 3C

i. - Map

A. - Max = 3.67-m, Mean = 1.43-m, U10 = 20.10-m/s

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 3.70-m, Mean = 1.42-m, U10 = 15.15-m/s

ii. - Validation

A. - 41002- good fit in wave height, but mean period was low all month.

(f) Level 3S2

i. - Map

A. - Max = 2.76-m, Mean = 1.36-m, U10 = 10.47-m/s

ii. - Validation

A. - None

0.6 1985-06

1. Problems

   (a) No issues running

2. Results

   (a) Level 1

   i. - Map

   A. - Max = 6.10-m, Mean = 2.85-m, U10 = 19.76-m/s

   ii. - Validation

   A. - Three peaks at 41001 in wave height were under-estimated by model, but largest peak at 44011 on the 28th was over-estimated by the model.

   (b) Level 2

   i. - Map

   A. - Max = 5.69-m, Mean = 1.81-m, U10 = 22.23-m/s

   ii. - Validation

   A. - Similar to level 1

   (c) Level 3N

   i. - Map

   A. - Max = 4.92-m, Mean = 1.34-m, U10 = 17.50-m/s

   ii. - Validation

   A. - 44005- good fit for wave height and mean period

   B. - 44007- fluctuations in wave height measurements are not present in model estimation.

C. - 44011 - negative bias in wave height and mean period throughout month. Slight over-estimation of largest peak on the 28th.

(d) Level 3C

i. - Map

A. - Max = 2.75-m, Mean = 1.23-m, U10 = 15.43-m/s

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 2.75-m, Mean = 1.19-m, U10 = 15.43-m/s

ii. - Validation

A. - None

(f) Level 3S2

i. - Map

A. - Max = 1.93-m, Mean = 1.08-m, U10 = 9.99-m/s

ii. - Validation

A. - None

0.7 1985-07

1. Problems

(a) No issues running

2. Results

(a) Level 1

i. - Map

A. - Max = 8.52-m, Mean = 2.49-m, U10 = 24.10-m/s

B. - 2 storm tracks with on making landfall on US coastline.

ii. - Validation

A. - Good fit for wave heigth overall. Consistant under-estimation of mean period at all buoys.

(b) Level 2
    i. - Map
        A. - Max = 8.00-m, Mean = 1.78-m, U10 = 26.00-m/s
        B. - 2 tracks with one making landfall near South Carolina.
    ii. - Validation
        A. - Similar to level 1

(c) Level 3N
    i. - Map
        A. - Max = 4.70-m, Mean = 1.13-m, U10 = 15.53-m/s
    ii. - Validation
        A. - 44005- Missed some fluctuations in wave heigth throught the month and over-estimated small event on the 19th and under-estimated larger event on the 27th. Mean period looks good.
        B. - 44011 - Good fit over all for wave height. Under-estimated mean period for entire month.

(d) Level 3C
    i. - Map
        A. - Max = 5.84-m, Mean = 1.13-m, U10 = 24.36-m/s
        B. - 1 storm track making landfall on South part of grid
    ii. - Validation
        A. - None

(e) Level 3S1
    i. - Map
        A. - Max = 5.19-m, Mean = 1.19-m, U10 = 24.36-m/s
        B. - 1 storm track through the middle of grid
    ii. - Validation
        A. - None

(f) Level 3S2
    i. - Map
        A. - Max = 3.81-m, Mean = 1.44-m, U10 = 17.99-m/s
        B. - One storm track coming off Florida in North part of grid
    ii. - Validation
        A. - None

0.8 1985-08

1. Problems
   (a) No issues running
2. Results
   (a) Level 1
      i. - Map
         A. - Max = 7.57-m, Mean = 2.88-m, U10 = 25.61-m/s
         B. - 4 storm tracks in grid but none making landfall on US coastline
      ii. - Validation
         A. - All wave heights less than 4-m for month. Few misses are on the 1st and 31st with some under-estimation of wave heights.
   (b) Level 2
      i. - Map
         A. - Max = 8.64-m, Mean = 1.90-m, U10 = 29.45-m/s
         B. - 2 tracks in grid. Both tracks coming off US coastline.
      ii. - Validation
         A. - Similar to level 1
   (c) Level 3N
      i. - Map
         A. - Max = 2.75-m, Mean = 1.09-m, U10 = 15.35-m/s
         B. - 1 track ending in South part of grid
      ii. - Validation
         A. - 44005- good fit over all. Slight under-estimation of large wave event on the 31st.
         B. - 44007 - Similar to 44005, Under-estimation of wave height event on the 31st.
         C. - 44011 - under-estimation of wave heights for event on the 1st and 31st. Mean period looks pretty good.
   (d) Level 3C

i. - Map
   A. - Max = 3.47-m, Mean = 1.26-m, U10 = 14.88-m/s
   B. - 2 storm tracks coming off of US coastline.
ii. - Validation
   A. - None

(e) Level 3S1

i. - Map
   A. - Max = 3.54-m, Mean = 1.31-m, U10 = 17.71-m/s
   B. - 1 storm track starting off the coast of Florida/Georgia.
ii. - Validation
   A. - None

(f) Level 3S2

i. - Map
   A. - Max = 5.18-m, Mean = 1.63-m, U10 = 19.73-m/s
ii. - Validation
   A. - None

0.9 1985-09

1. Problems

   (a) No issues running

2. Results

   (a) Level 1

   i. - Map
      A. - Max = 16.34-m, Mean = 2.44-m, U10 = 13.54-m/s
      B. - Lots of storms with one big storm making landfall on US coastline /textbfBIG STORM
   ii. - Validation
      A. - Very good month for wave heights. Matched the biggest event on the 27th very closely.

   (b) Level 2

i. - Map
   A. - Max = 18.85-m, Mean = 2.28-m, U10 = 46.74-m/s
   B. - 3 storm tracks with 2 making landfall on US coastline.
ii. - Validation
   A. - Similar to level 1

(c) Level 3N
i. - Map
   A. - Max = 10.52-m, Mean = 1.50-m, U10 = 34.31-m/s
   B. - 2 storm tracks in grid, both hit New York.
ii. - Validation
   A. - 44005 - good fit overall
   B. - 44007 - Under-estimated wave height on the 28th storm by 2-m. Mean period was low most of the month
   C. - 44011 - Good fit for wave height, low on mean period.

(d) Level 3C
i. - Map
   A. - Max = 16.80-m, Mean = 2.13-m, U10 = 43.48-m/s
   B. - 2 tracks in grid. One hit the OBX as it went by.
ii. - Validation
   A. - None

(e) Level 3S1
i. - Map
   A. - Max = 17.51-m, Mean = 2.27-m, U10 = 41.80-m/s
   B. - 2 tracks in grid
ii. - Validation
   A. - 41002- very good fit to data. Hurricane passed just to West of buoy.

(f) Level 3S2
i. - Map
   A. - Max = 17.50-m, Mean = 2.27-m, U10 = 41.52-m/s
   B. - One track in Northeast corner of grid
ii. - Validation
   A. - None

0.10 1985-10

1. Problems
   (a) No issues running
2. Results
   (a) Level 1
      i. - Map
         A. - Max = 10.66-m, Mean = 3.98-m, U10 = 26.90-m/s
         B. - 3 storm tracks with a couple making landfall on US coastline
      ii. - Validation
         A. - 41002 looks good, but all other buoys have a under-estimation of wave height by the model, especially during larger wave events.
   (b) Level 2
      i. - Map
         A. - Max = 10.72-m, Mean = 2.46-m, U10 = 31.53-m/s
         B. - 2 strom tracks with one hitting Georgia and the other passing OBX and hitting New York.
      ii. - Validation
         A. - Similar to level 1
   (c) Level 3N
      i. - Map
         A. - Max = 4.14-m, Mean = 1.47-m, U10 = 18.73-m/s
         B. - 1 storm track making landfall in New York.
      ii. - Validation
         A. - 44005- under-estimation of wave height throughout month. Mean period was low too.
         B. - 44007 - No wave heights over 2-m and model was always within 0.5-m.
         C. - 44011 - Negative bias for both wave heigth and mean period throughout the month.

(d) Level 3C

i. - Map

A. - Max = 5.32-m, Mean = 1.99-m, U10 = 17.50-m/s

B. - 2 storm tracks in domain, 1 making landfall on OBX

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 10.70-m, Mean = 1.99-m, U10 = 28.60-m/s

B. - 2 storm tracks with one coming on and off land in Georgia.

ii. - Validation

A. - 41002 - good fit in both wave height and mean period for the month.

(f) Level 3S2

i. - Map

A. - Max = 10.70-m, Mean = 2.04-m, U10 = 28.60-m/s

B. - 1 storm track in Northeast corner of grid.

ii. - Validation

A. - None

0.11 1985-11

1. Problems

(a) No issues running

2. Results

(a) Level 1

i. - Map

A. - Max = 14.43-m, Mean = 4.79-m, U10 = 29.21-m/s

B. - 1 storm track coming off of US coastline

ii. - Validation

A. - Biggest misses in wave height came from events between 15th and 18th. All these had under-estimation of wave heights.

(b) Level 2

i. - Map

A. - Max = 12.11-m, Mean = 3.17-m, U10 = 37.70-m/s

B. - 1 storm track coming off the US coastline.

ii. - Validation

A. - Similar to level 1

(c) Level 3N

i. - Map

A. - Max = 5.23-m, Mean = 2.14-m, U10 = 18.48-m/s

ii. - Validation

A. - 44005 - under-estimation from the model of both wave height and mean period.

B. - 44007 - wave height had good fit except for peak on the 17th when measurements went up and model did not.

C. - 44011 - under-estimation of both wave heigth and mean period. During the peak on the 16th the model was more than 2-m low.

(d) Level 3C

i. - Map

A. - Max = 4.98-m, Mean = 2.13-m, U10 = 24.68-m/s

B. - 1 storm track coming off the US coastline near Wilmington, NC.

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 5.80-m, Mean = 2.35-m, U10 = 24.46-m/s

ii. - Validation

A. - 41002 - good fit for both wave height and mean period.

(f) Level 3S2

i. - Map

A. - Max = 10.67-m, Mean = 2.71-m, U10 = 27.88-m/s

ii. - Validation

A. - None

0.12 1985-12

1. Problems

(a) No issues running

2. Results

(a) Level 1

i. - Map

A. - Max = 18.94-m, Mean = 5.48-m, U10 = 31.40-m/s

ii. - Validation

A. - Under-estimation of peak wave heigh on the 3rd by 2-m and a consitant negative bias in mean period at most buoys.

(b) Level 2

i. - Map

A. - Max = 7.35-m, Mean = 3.62-m, U10 = 24.52-m/s

ii. - Validation

A. - Similar to level 1

(c) Level 3N

i. - Map

A. - Max = 6.43-m, Mean = 2.41-m, U10 = 22.96-m/s

ii. - Validation

A. - 44005 - wave heights from model are low at all peaks in the measured data. The mean period is negative bias throughout the month.

B. - 44007 - pretty good fit except the model wave height estimate was 1-m low for peak on the 2nd.

C. - 44011 - wave heights from the model were low at every peak but close than at 44005. The mean period was negatively bias throughout the month.

(d) Level 3C

i. - Map

A. - Max = 4.32-m, Mean = 2.07-m, U10 = 19.33-m/s

ii. - Validation

A. - None

(e) Level 3S1

i. - Map

A. - Max = 4.17-m, Mean = 2.04-m, U10 = 16.54-m/s

ii. - Validation

A. - None

(f) Level 3S2

i. - Map

A. - Max = 3.64-m, Mean = 1.98-m, U10 = 14.01-m/s

ii. - Validation

A. - None

0.13 1984-stats

0.13.1 Level 1

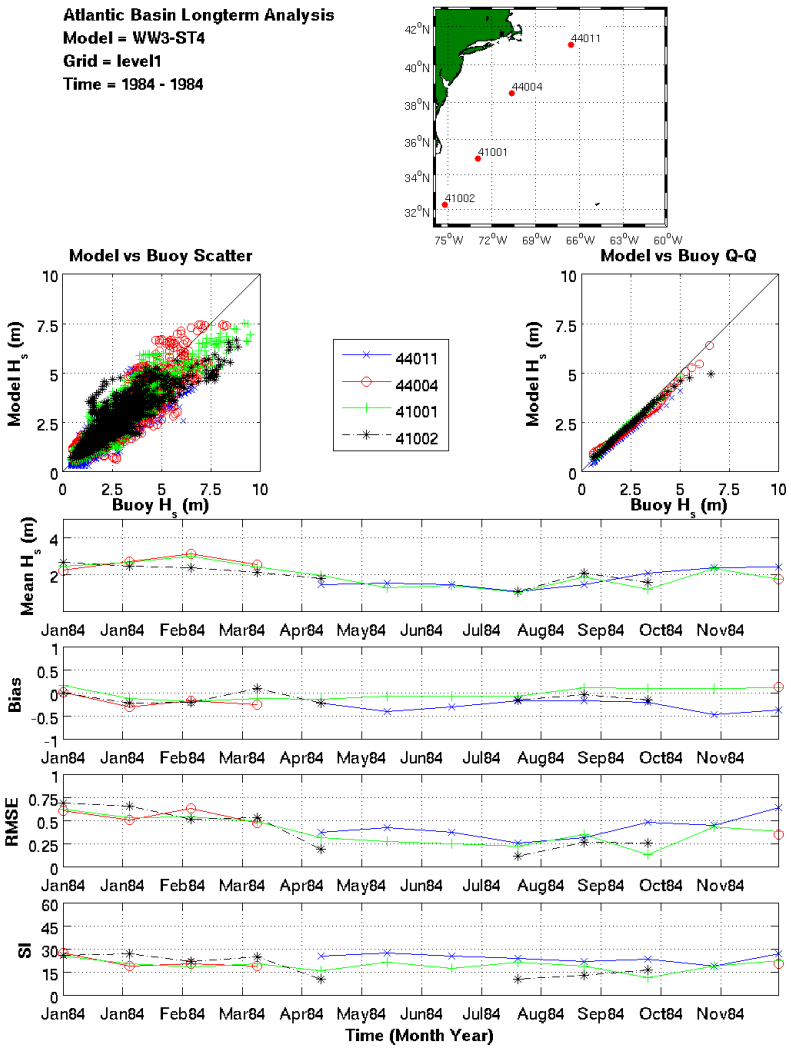

Figure 1: Comp 2 for Level 1

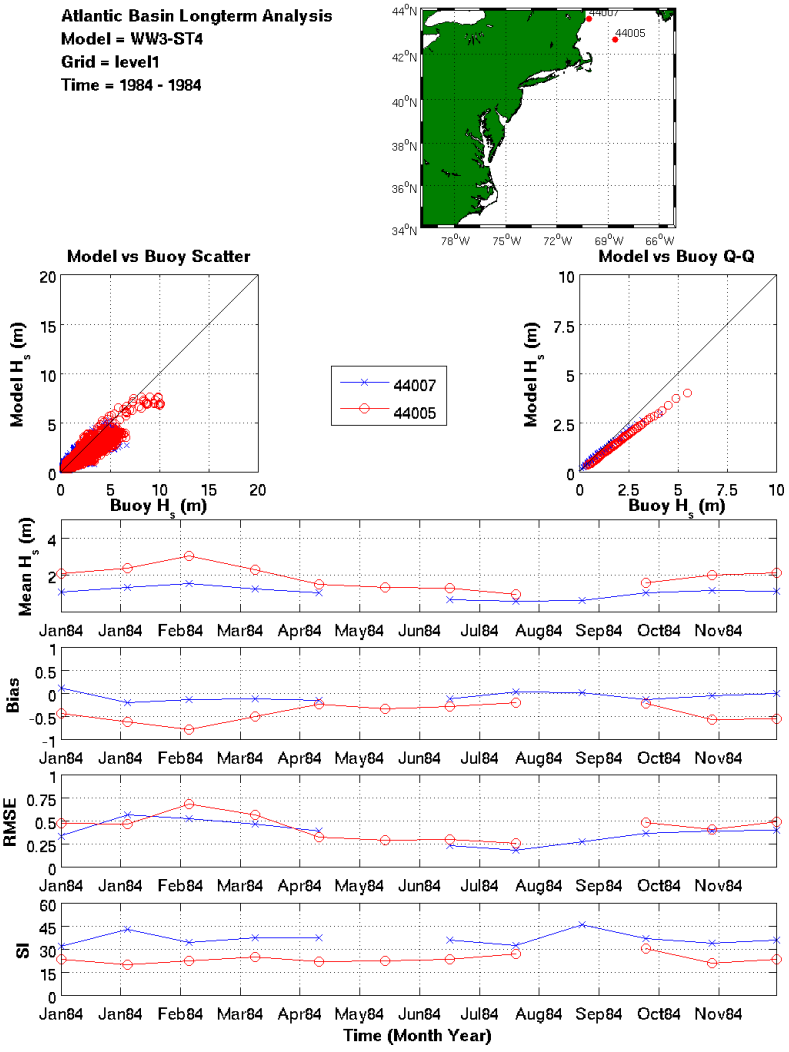

Figure 2: Comp 3 for Level 1

0.13.2 Level 2

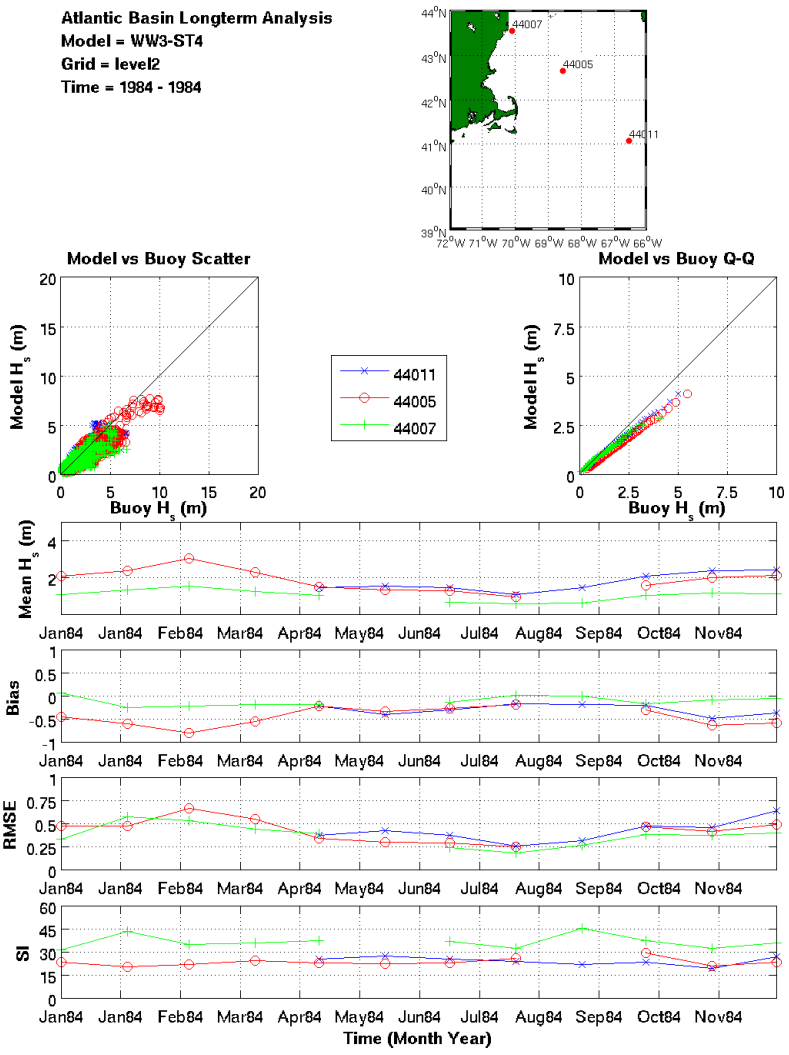

Figure 3: Comp 2 for Level 2

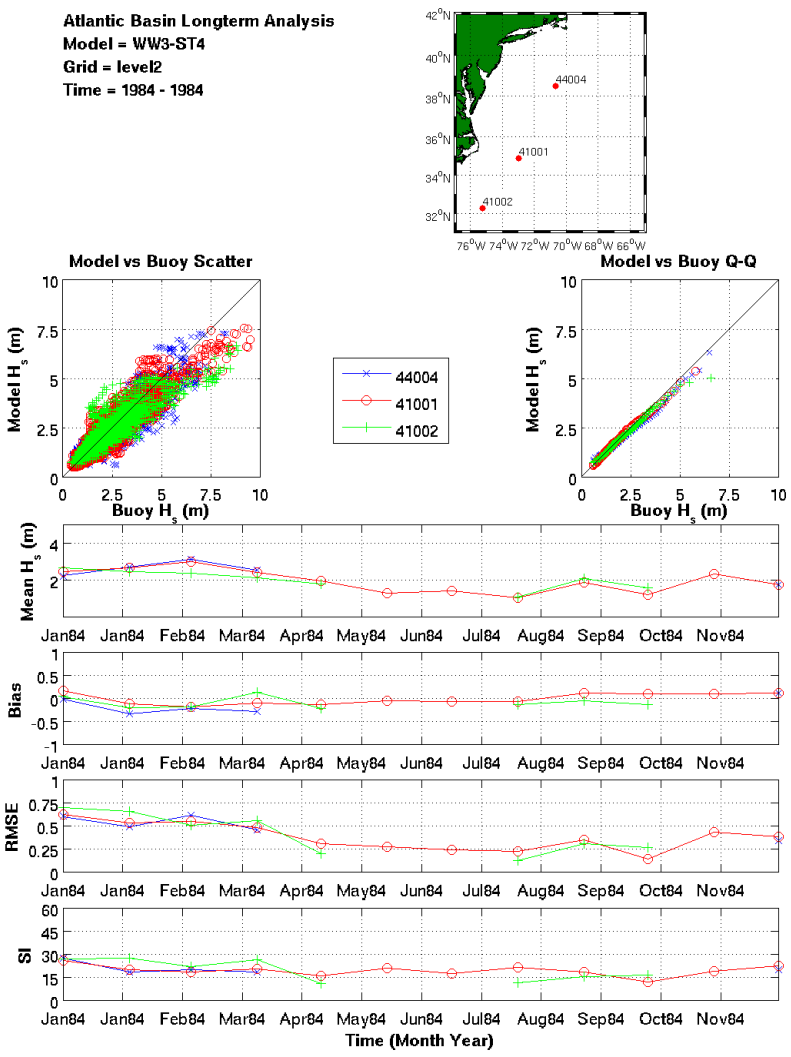

Figure 4: Comp 3 for Level 2

0.13.3 Level 3N

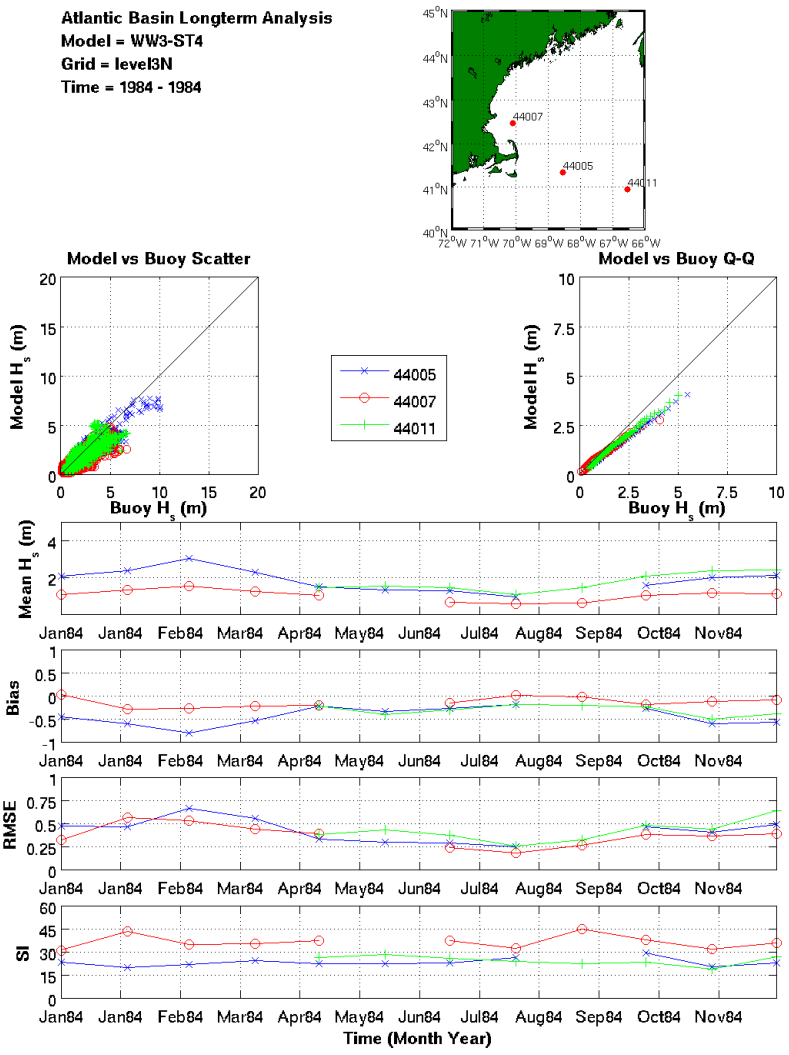

Figure 5: Comp 1 for Level 3N

0.13.4 Level 3S1

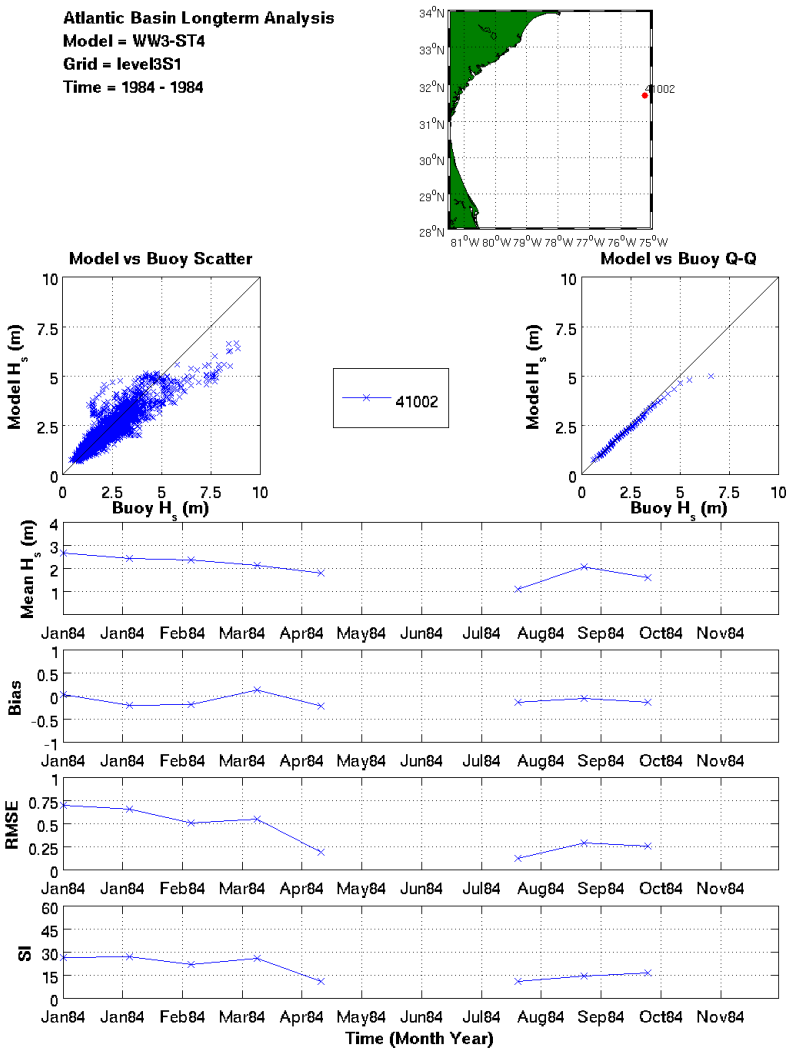

Figure 6: Comp 1 for Level 3S1