



ATCF Requirements, Intensity Consensus Sea Heights Consistent with NHC Forecasts (Progress Report)

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**IHC 2010
Savannah**



Tasks



- 1. NHC User Requirements for ATCF**
- 2. Intensity Consensus Review and Update**
- 3. Sea Heights Consistent with NHC Forecasts**

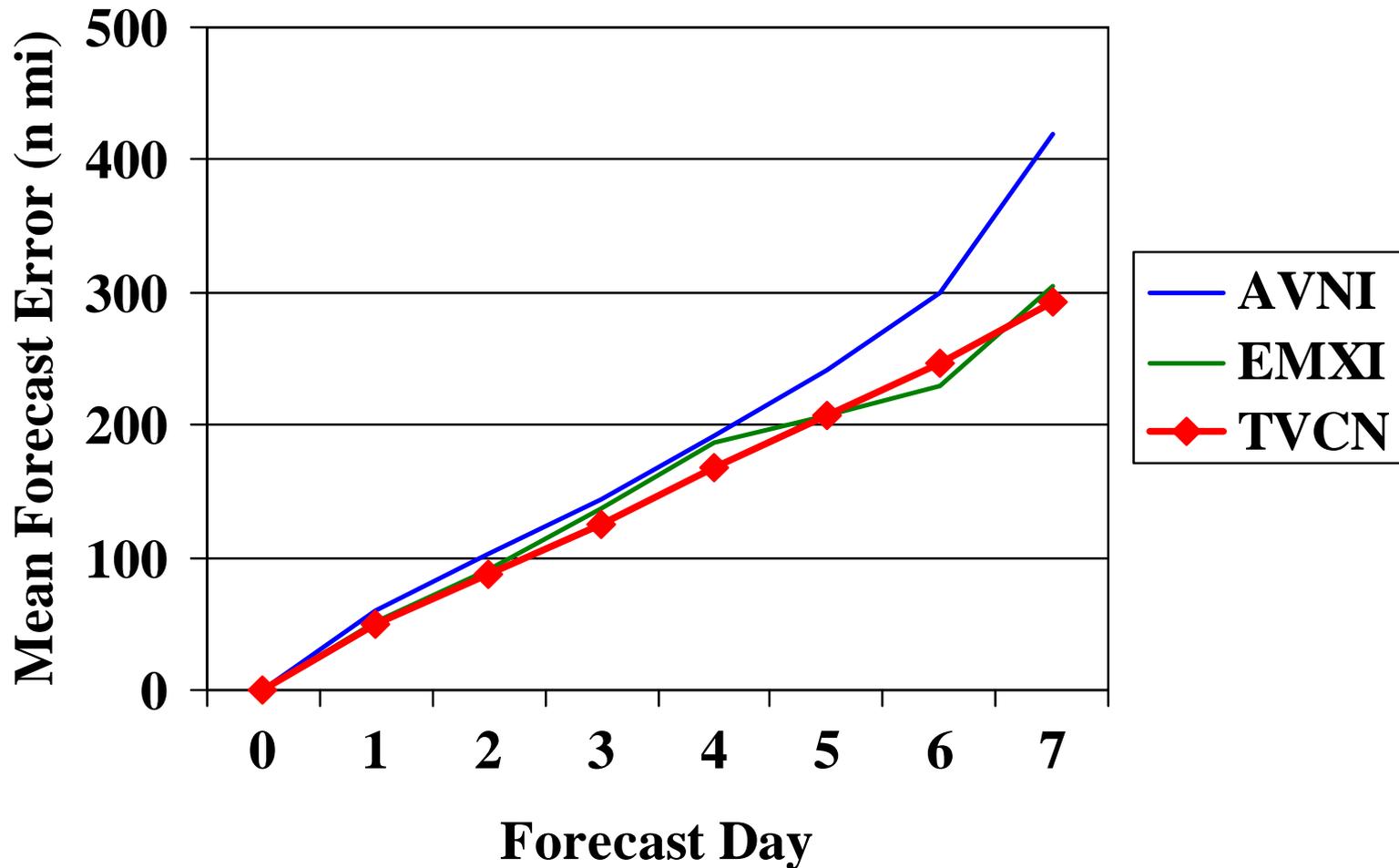


1. User Requirements for ATCF

- Six and Seven Day Forecasting
 - Interpolator and consensus
 - Statistics
 - Forecast track display, dialog
 - Forecast intensity display, dialog
- Central Pacific GPCE
 - Based on western North Pacific coefficients
 - Need more data for evaluation
- GPCE-AX display



1. Six and Seven Day Forecasting Interpolator, Consensus and Statistics



Error head-to-head with TVCN. 2007-2009 Atlantic seasons. Aids with more than 50 cases at day seven included.



1. Six and Seven Day Forecasting Track Dialog



File Tools Fixes Track Aids Fields Forecast Advisory Graphic | Manage-Storms Statistics Messages Configure Help

Forecast Track Dialog - SIX_SEVEN al802009

Tau Labels
 Complete Tracks
 Consensus Aids
 GPCE Prob.
 GPCE Climatology
 GPCE-AX

Forecast
Delete

TAU: 12
24
36
48
72
96
120
144
168

Other Aids...

TAU (hours)	LAT.	LON.	DIR.	SPEED (knots)
0	13.5N	43.2W	282	19
12	14.4N	46.4W	286	16
24	15.1N	49.0W	285	13
36	16.0N	51.6W	290	13
48	17.3N	54.0W	299	13
72	20.5N	59.0W	304	14
96	25.0N	63.5W	318	15
120	30.1N	66.5W	333	14

Help Apply OK Cancel

Aids (dashed)

Forecast buttons

39.6N-76.3W



1. Six and Seven Day Forecasting Intensity Dialog



Intensity Forecast - SIX_SEVEN al802009

Intensity Forecast

00h	12h	24h	36h	48h	72h	96h	120h	144h	168h
65	75	85	95	105	110	105	100	105	100

Gusts

00h	12h	24h	36h	48h	72h	96h	120h	144h	168h
80	90	105	115	130	135	130	125	130	125

Development Type

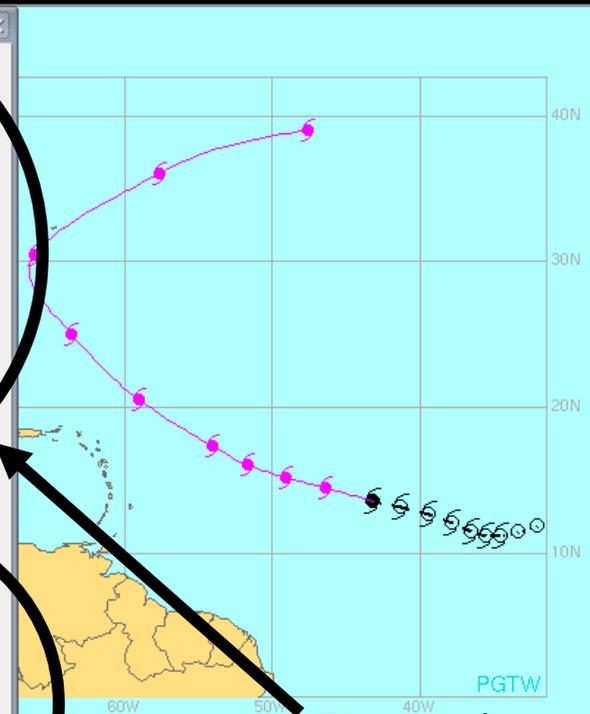
00h	12h	24h	36h	48h	72h	96h	120h	144h	168h
HU	HU	HU							

View Intensity Graph / Make Forecast ...

Intensity Guidance

AID	12h	24h	36h	48h	72h	96h	120h	144h	168h
EHXI	67	69	71	72	81	83	82	78	78
GFDI	72	74	81	92	111	125	125	0	0
GFDL	67	77	86	88	107	120	125	0	0
GFDN	83	80	96	93	0	0	0	0	0
GFN2	62	66	72	82	98	110	135	0	0
HWFI	66	69	78	95	113	118	110	0	0
ICDL	73	77	83	93	107	110	107	0	0
OFCL	75	85	95	105	110	105	100	105	100
SHIP	76	86	96	103	111	111	100	0	0
UKHI	66	68	68	68	69	72	72	76	0

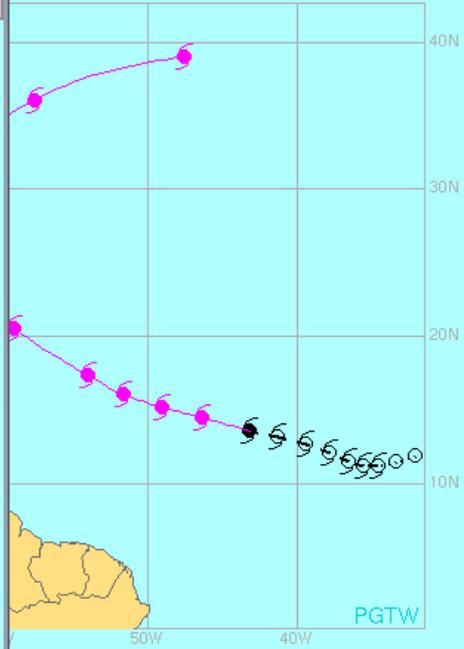
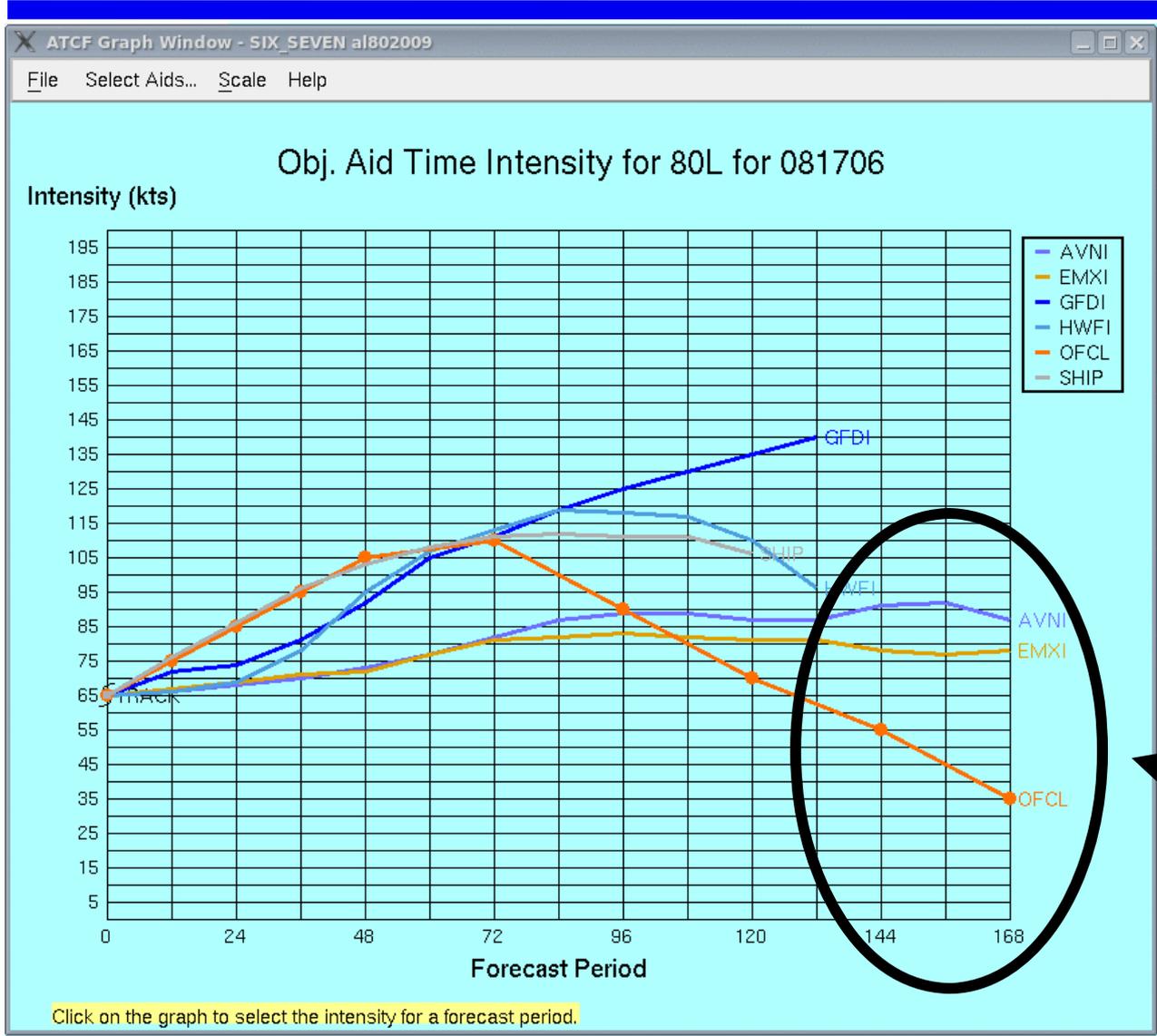
Help OK Cancel



Intensity Dialog Changes



1. Six and Seven Day Forecasting Time-Intensity Graph



Time-Intensity Graph



Intensity Consensus Review and Update

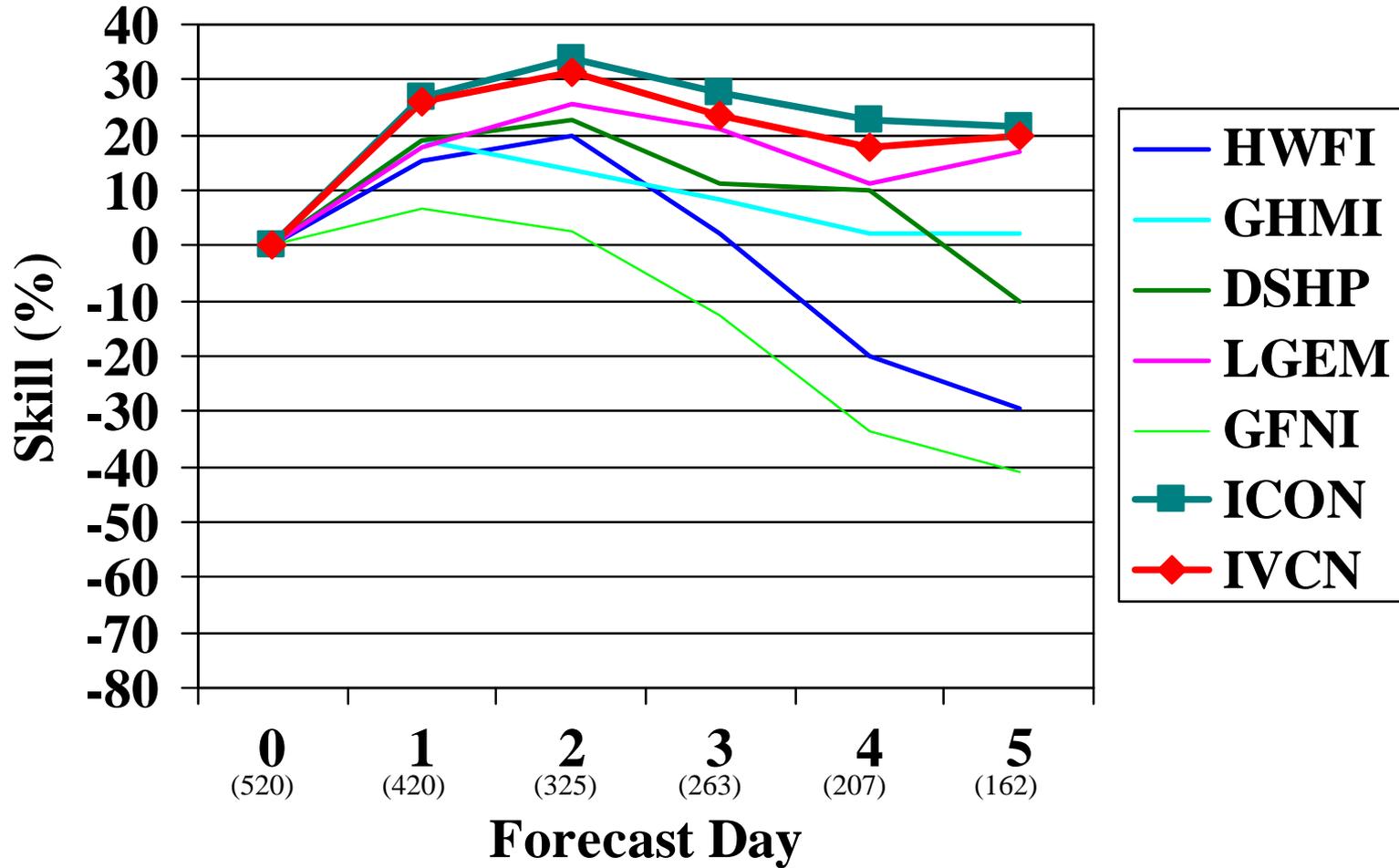


- **Forecasts are all “early models”**
- **Consensus is average (equal weights) forecast**
- **ICON = DSHP+ LGEM + GHMI + HWFI**
all must be present to compute
- **IVCN = DSHP+ LGEM + GHMI + HWFI + GFNI**
two or more must be present to compute
- **Baselines for more complex methods**

More info: Sampson, C. R., J. L. Franklin, J. L., J. A. Knaff and M. DeMaria, 2007: Experiments with a simple tropical cyclone intensity consensus. Wea. And Forecasting, 23, 304-312.



2008-2009 Atlantic Intensity Skill

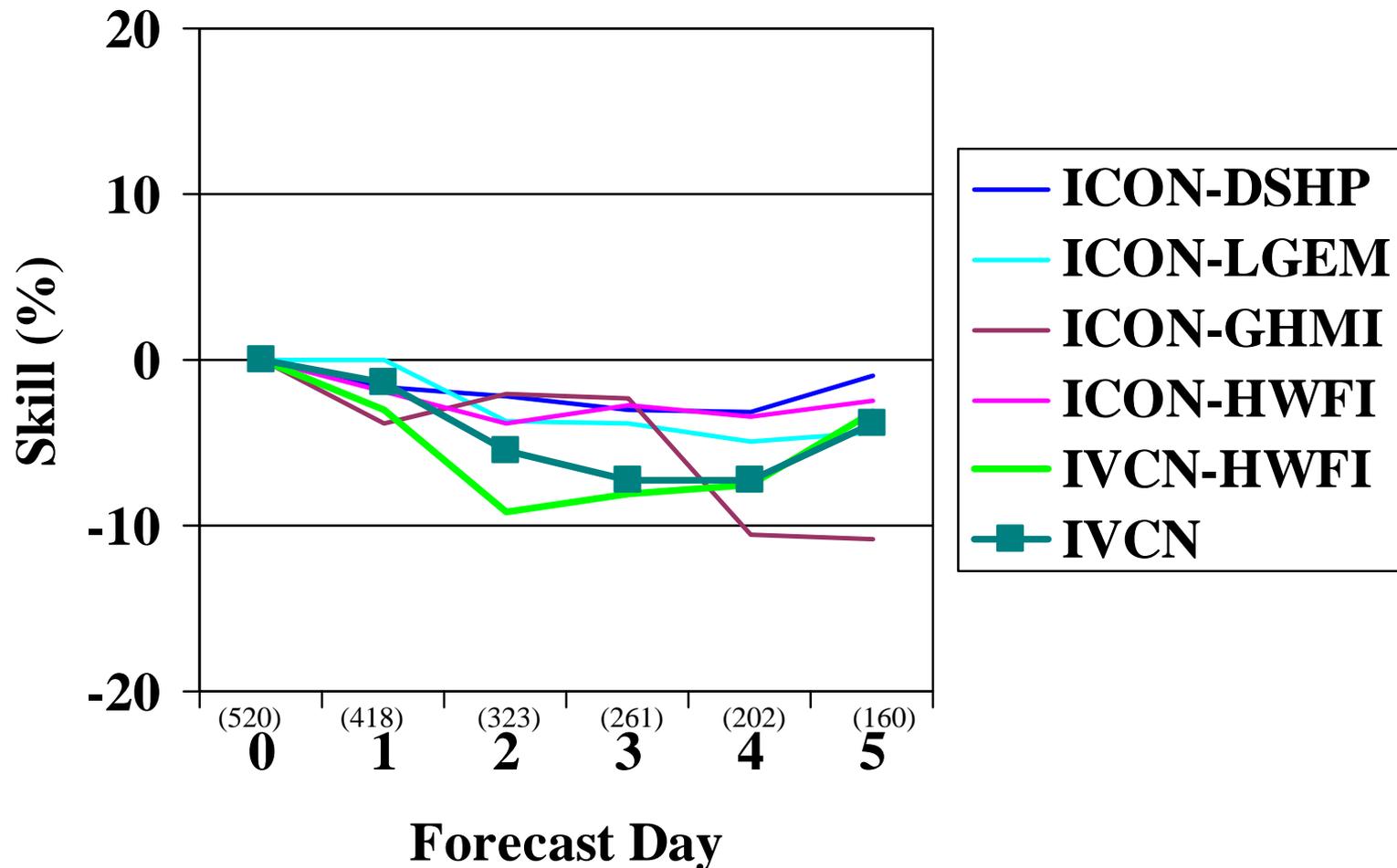




2008-2009 Atlantic Intensity Skill

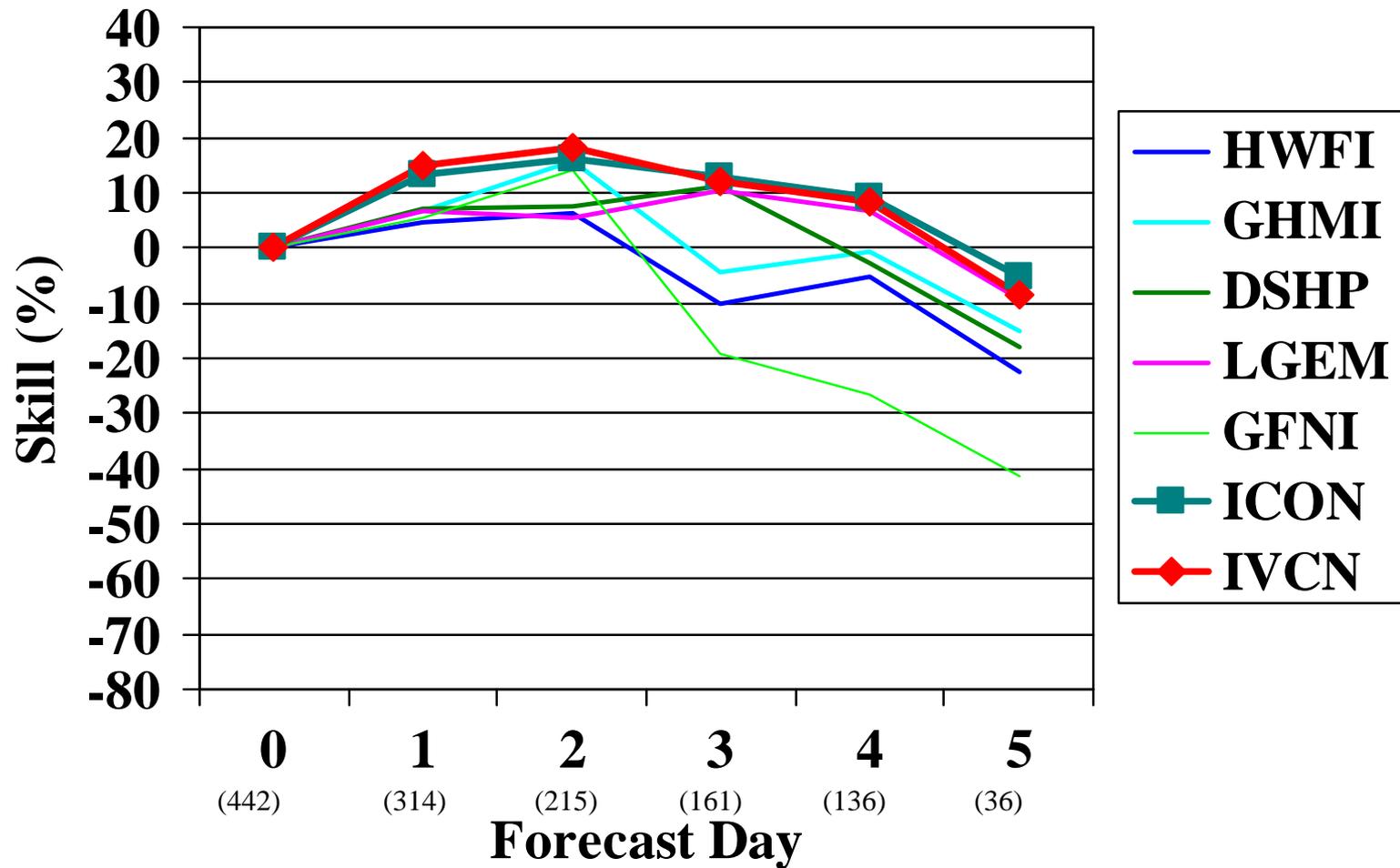


Using ICON as Baseline





2008-2009 EastPac Intensity Skill

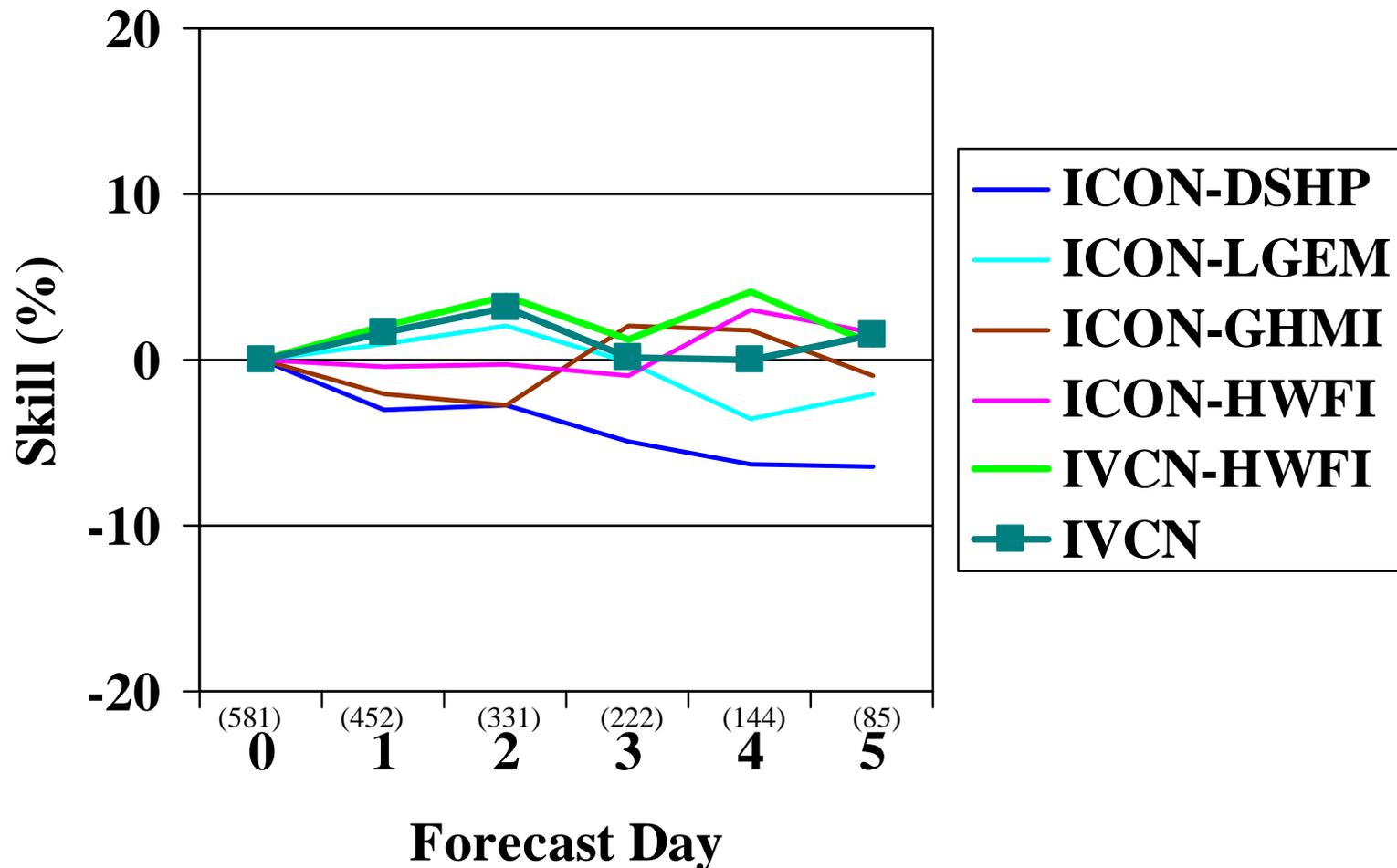




2008-2009 EastPac Intensity Skill



Using ICON as Baseline





Intensity Consensus Summary



- ICON the top performer in Atlantic
- IVCN a top performer in Eastpac
- Other consensus aids within ~10% skill
- Consensus performance should improve as models are improved



3. Sea Heights Consistent with Official Forecast

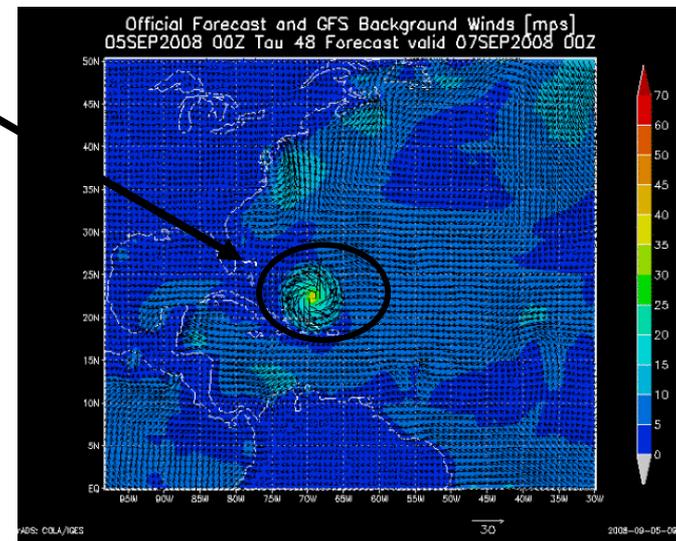
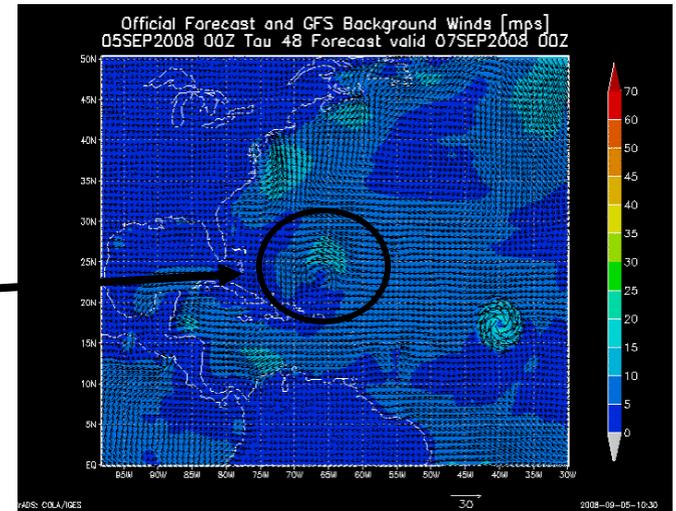


Algorithm:

1. Obtain GFS sfc winds
2. Cut out model vortex
3. Generate OFCL vortex
4. Insert OFCL in GFS sfc winds
5. Run WW3
6. Similar in concept to NAH WW3

(Modified) Goals for 2010:

1. Produce grib files for NAWIPS
2. Use 6-h old GFS run to reduce latency
3. Run real-time at NRL
4. ATCF output for 12-ft seas radii





Progress Summary



- 1. NHC User Requirements for ATCF (40% complete)**
- 2. Intensity Consensus Review and Update (50% complete)**
- 3. Sea Heights Consistent with NHC Forecasts (20% complete)**