National Hurricane Center 2009 Forecast Verification
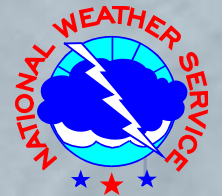
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National Hurricane Center

2009 HFIP Workshop

Verification Rules

* Verification rules unchanged for 2009. Results presented here in both basins are preliminary.

* System must be a tropical or subtropical cyclone at both forecast initial time and verification time. All verifications include depression stage except for GPRA goal verification.

* Special advisories ignored (original advisory is verified.

* Skill baselines are recomputed after the season from operational compute data. Decay-SHIFOR5 is the intensity skill benchmark.

2009 Preliminary Atlantic Verification (not including Ida)

**NHC Official Forecasts (Preliminary)
2009 - Atlantic Basin**
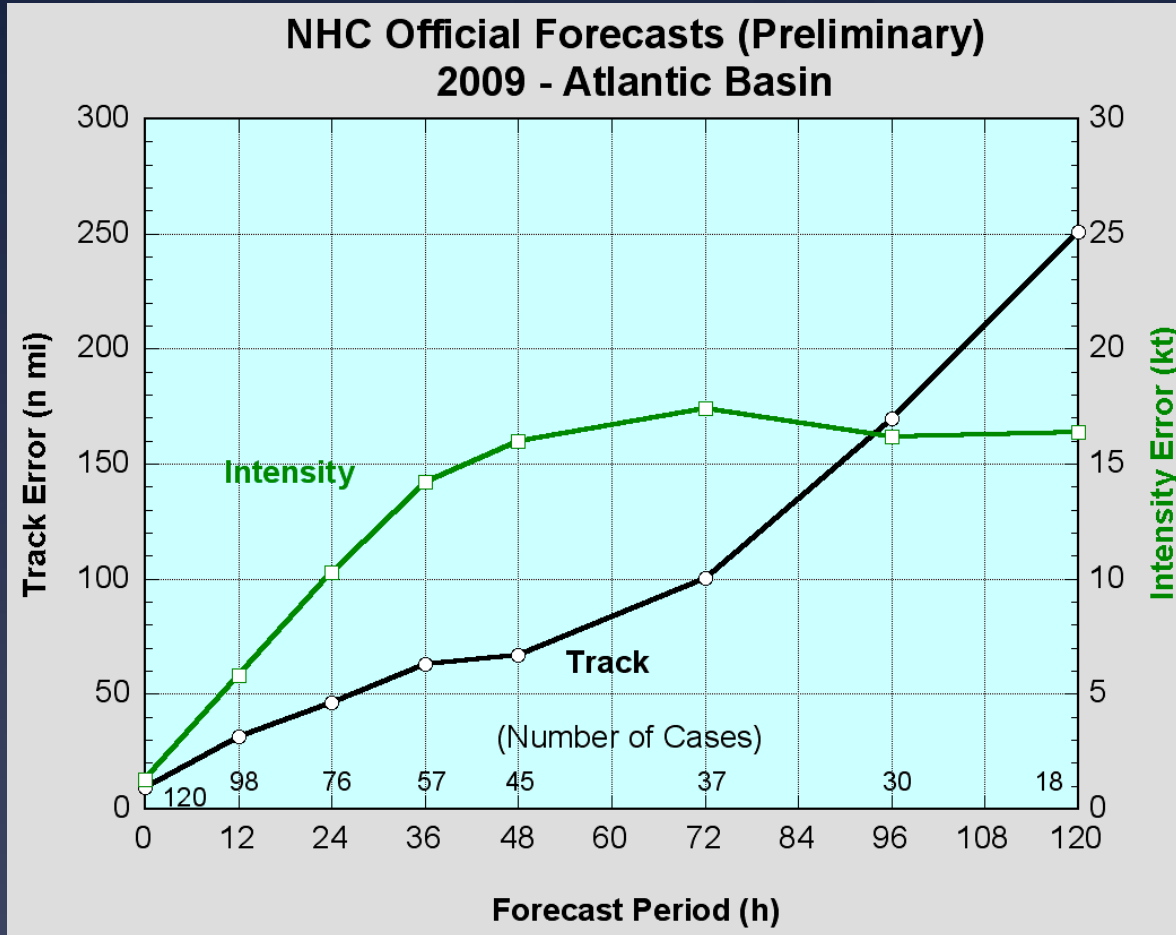
| VT (h)	NT	TRACK (n mi)	INT (kt)
000	120	9.5	1.3
012	98	31.3	5.8
024	76	46.4	10.3
036	57	62.9	14.2
048	45	66.9	16.0
072	37	100.2	17.4
096	30	169.5	16.2
120	18	250.8	16.4

Values in green exceed all-time records.

48 h track error for TS and H only (GPRA goal) was 64.5 n mi, well below previous record of 86.2.

Sample is very small (last year 346 forecasts, with 149 verifying at 5 days.
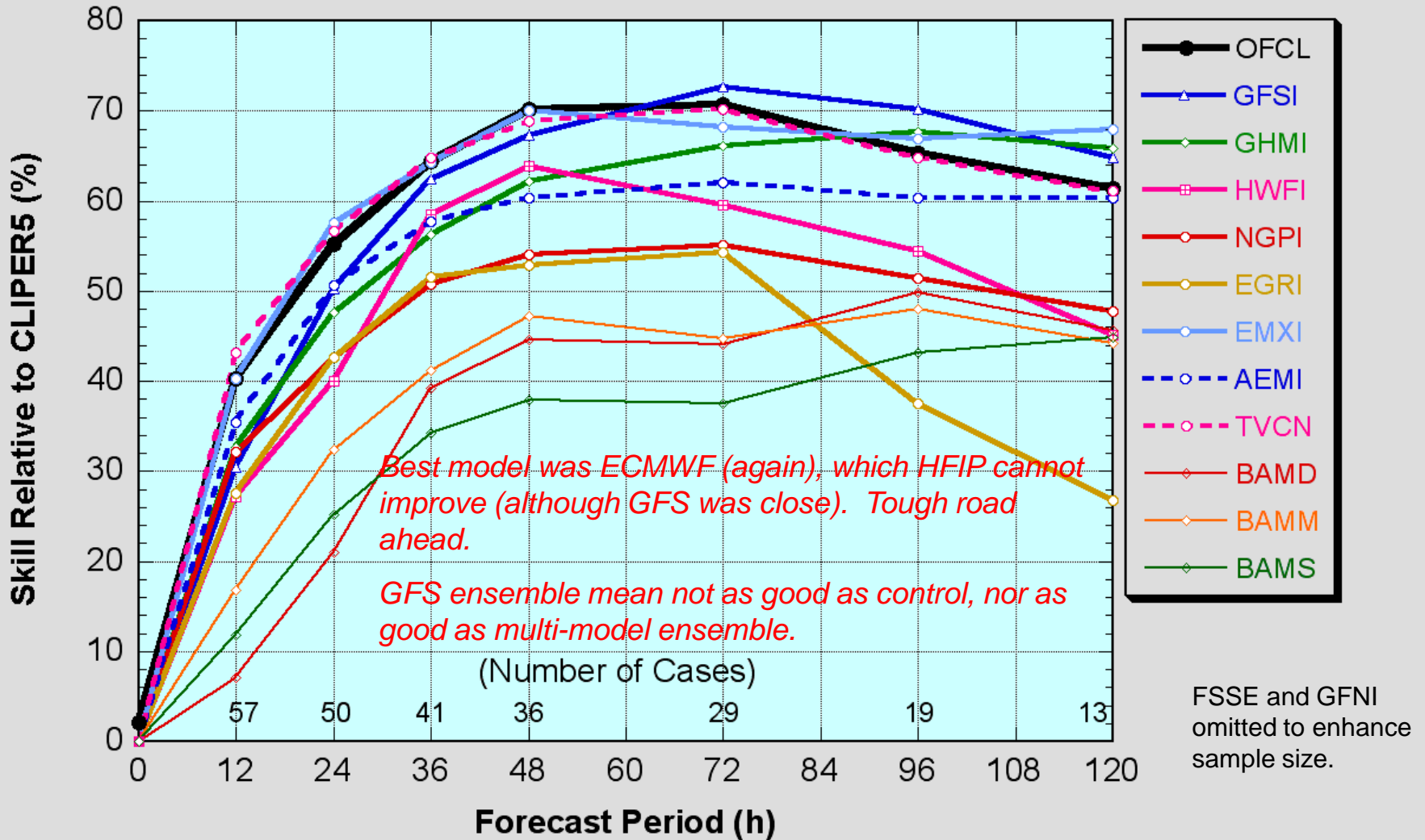
Atlantic Track Errors vs. 5-Year Mean

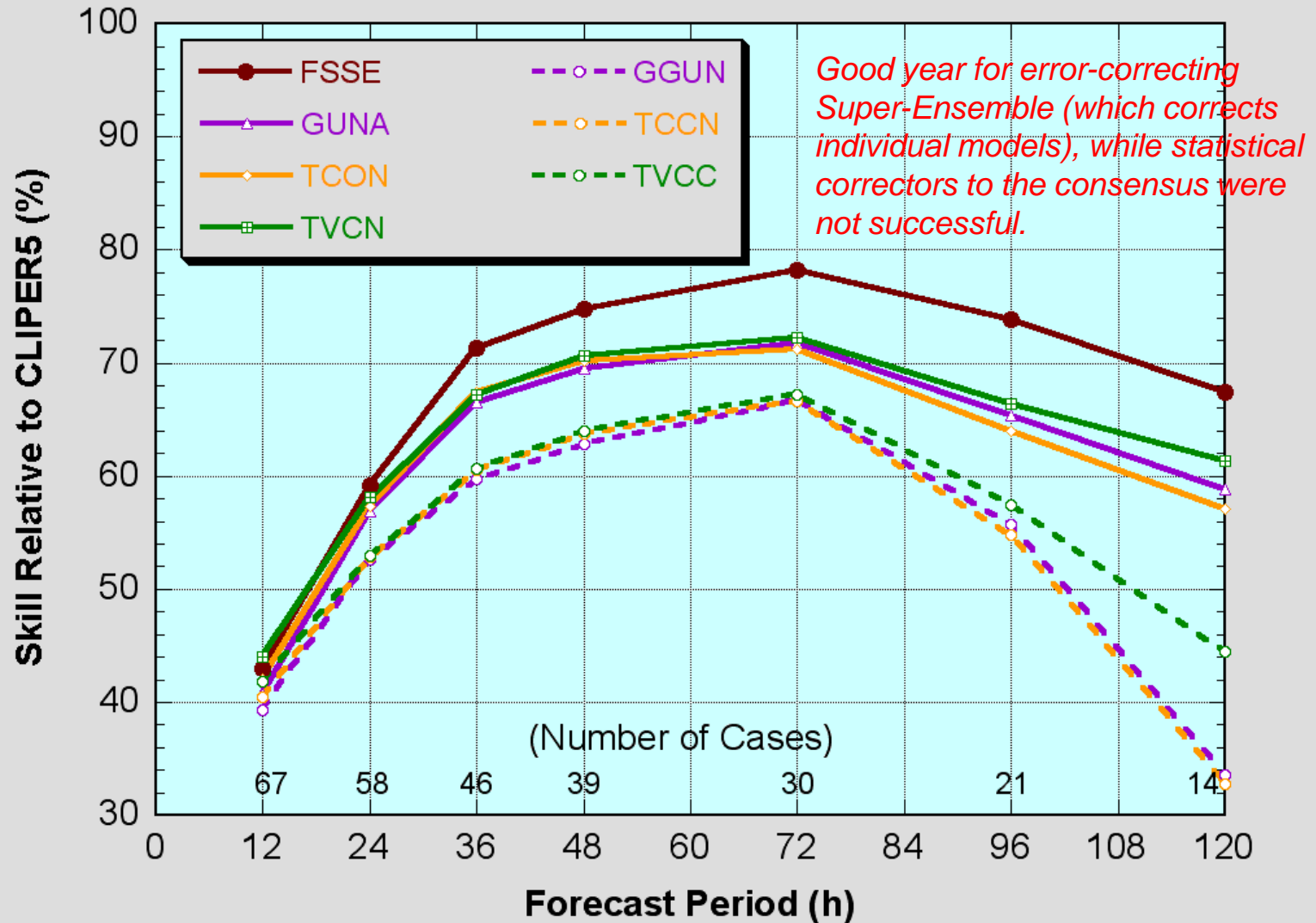NHC Official vs. CLIPER5 Track Forecasts
Atlantic Basin
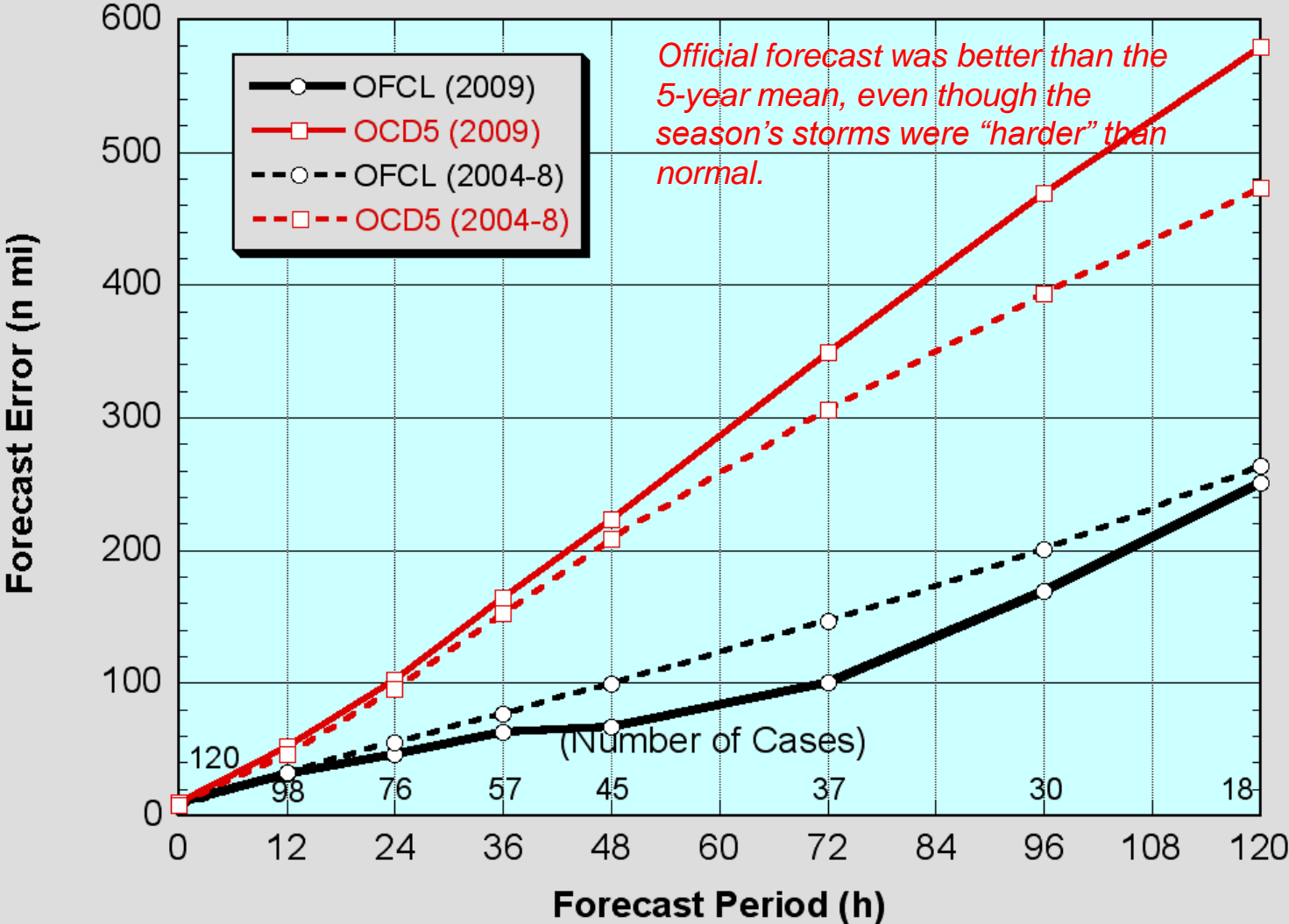
2009 Track Guidance

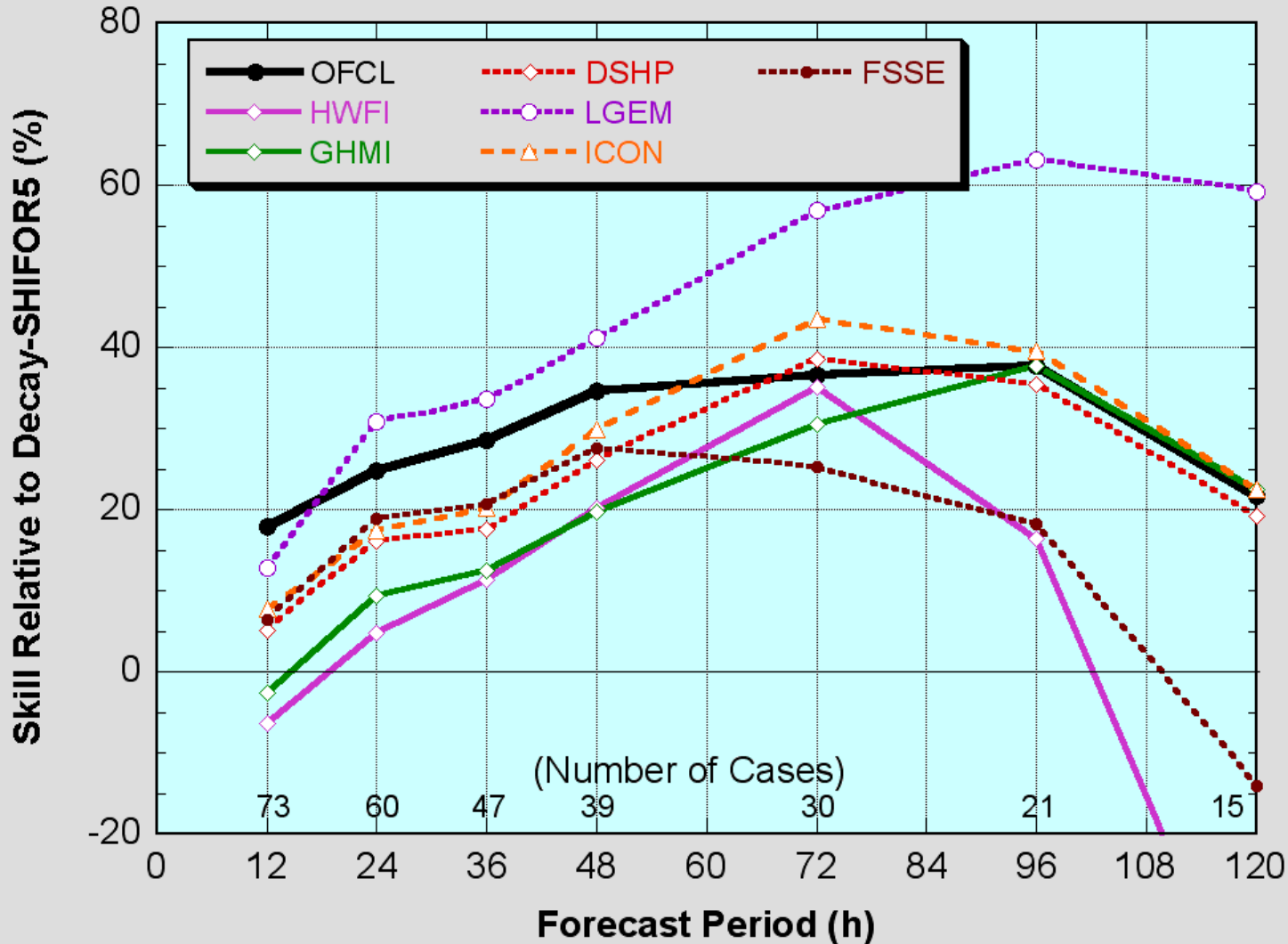Track Forecast Skill (Early Models)
2009 - Atlantic Basin

Consensus Models

Track Forecast Skill (Consensus Models)
2009 - Atlantic Basin

Good year for error-correcting Super-Ensemble (which corrects individual models), while statistical correctors to the consensus were not successful.

2009 Intensity Guidance

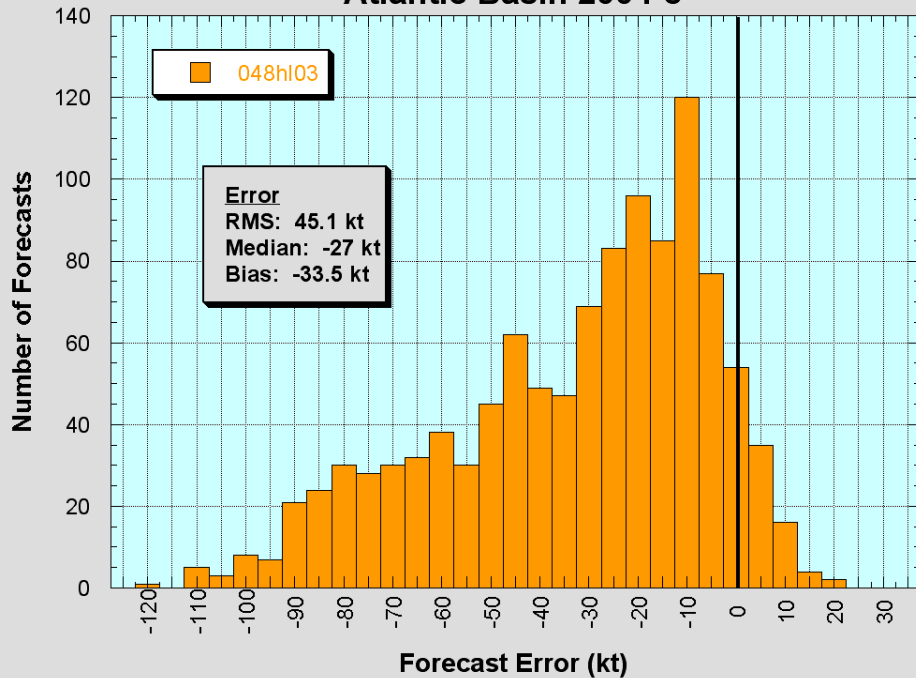Intensity Forecast Skill (Early Models)
2009 - Atlantic Basin

Best intensity model (as it generally is) was a statistical model. LGEM may have done well because it is very responsive to variations in shear. Very tough year for the GFDL and HWRF.
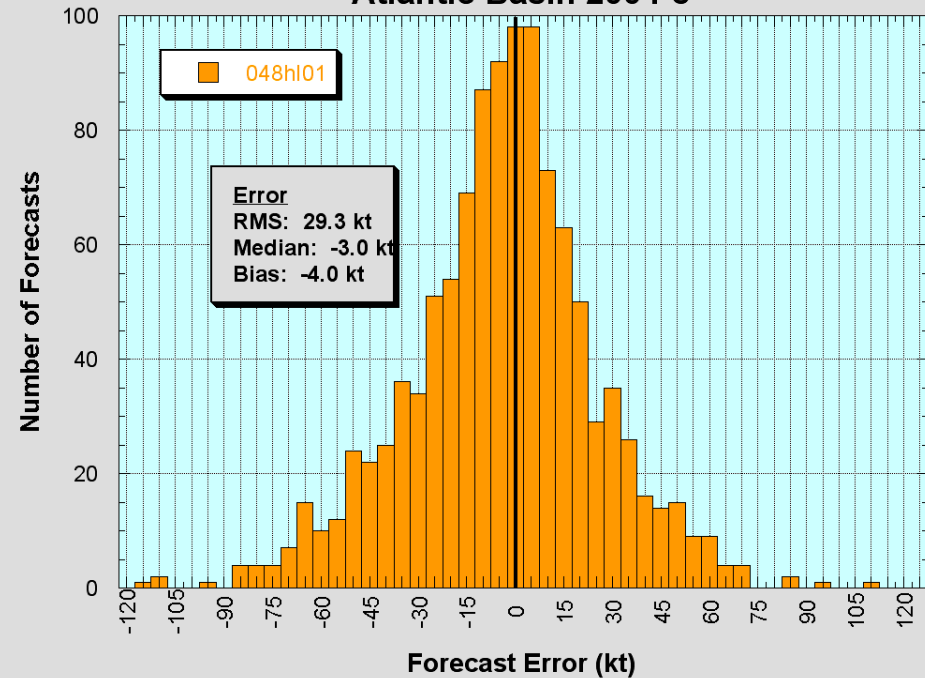
Long and difficult road ahead.
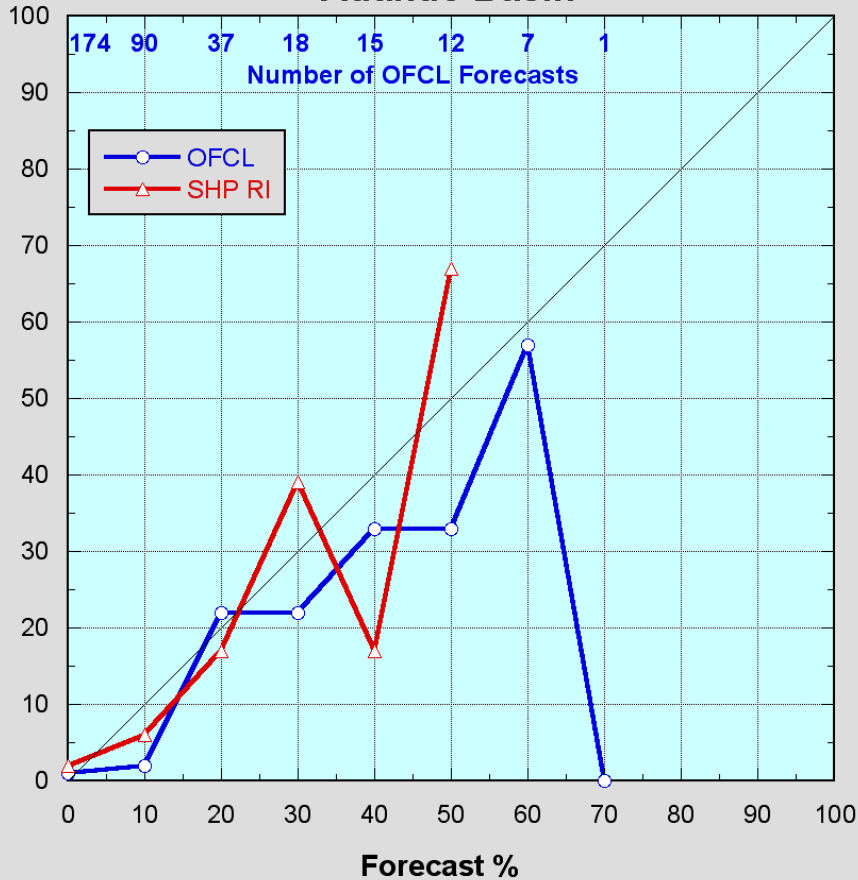
GFS vs Interpolated GFS Intensity Forecasts

GFS has a well-known low intensity bias, but the forecaster doesn't use GFS. He uses GFSI, which accounts for analysis bias (i.e., we're looking at forecasts of intensity change). So, the forecaster is much less interested in whether higher resolution is reducing the bias than in whether higher resolution is making the **intensity change** forecasts better!
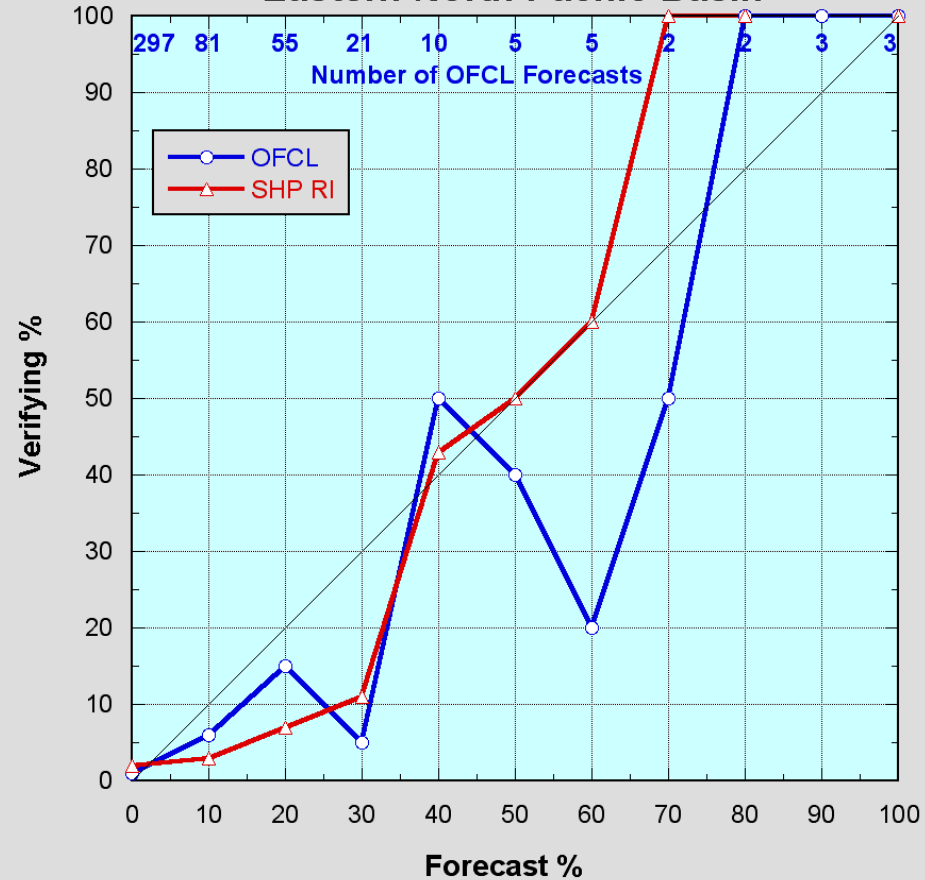
Error characteristics of "late" models can be very different from the error characteristics of the corresponding "early" (interpolated) models.

# 2008-9 RI Forecast Verification

Experimental RI forecasts so far show that we're a little over-eager. We do seem to be able to distinguish broad categories of likelihood (low/medium/high).

2007-09 Genesis Forecast Verification

2007-9 OFCL Experimental 48-h Genesis Forecasts Atlantic Basin
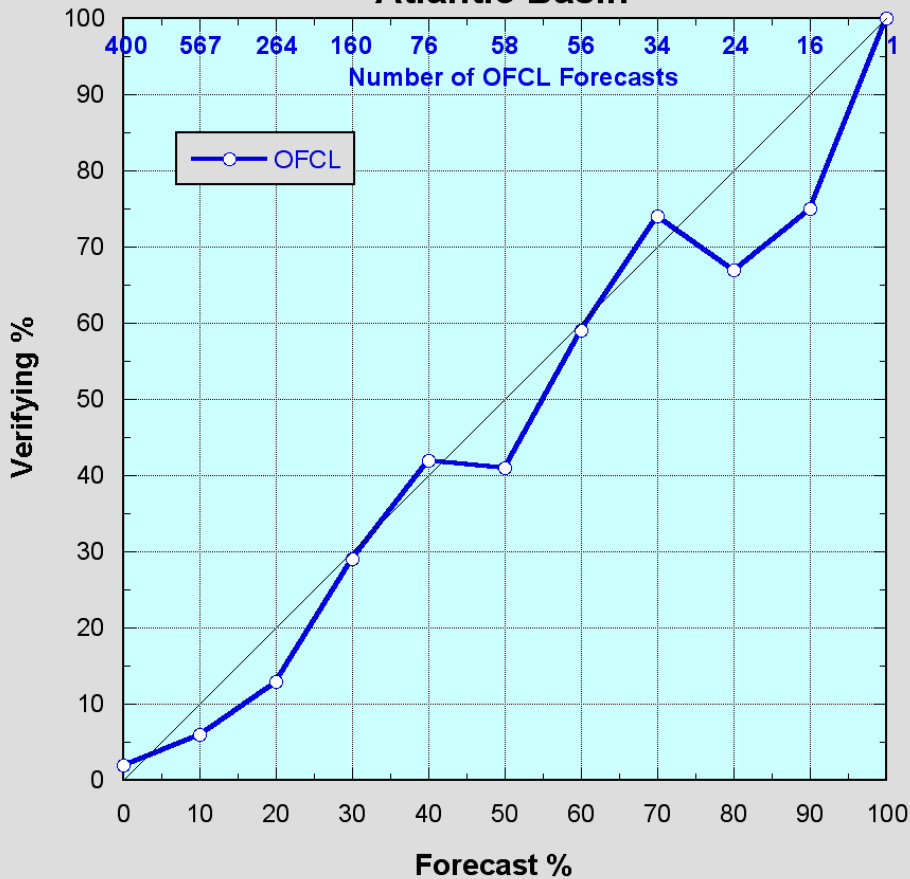
2007-9 OFCL Experimental 48-h Genesis Forecasts Eastern North Pacific Basin
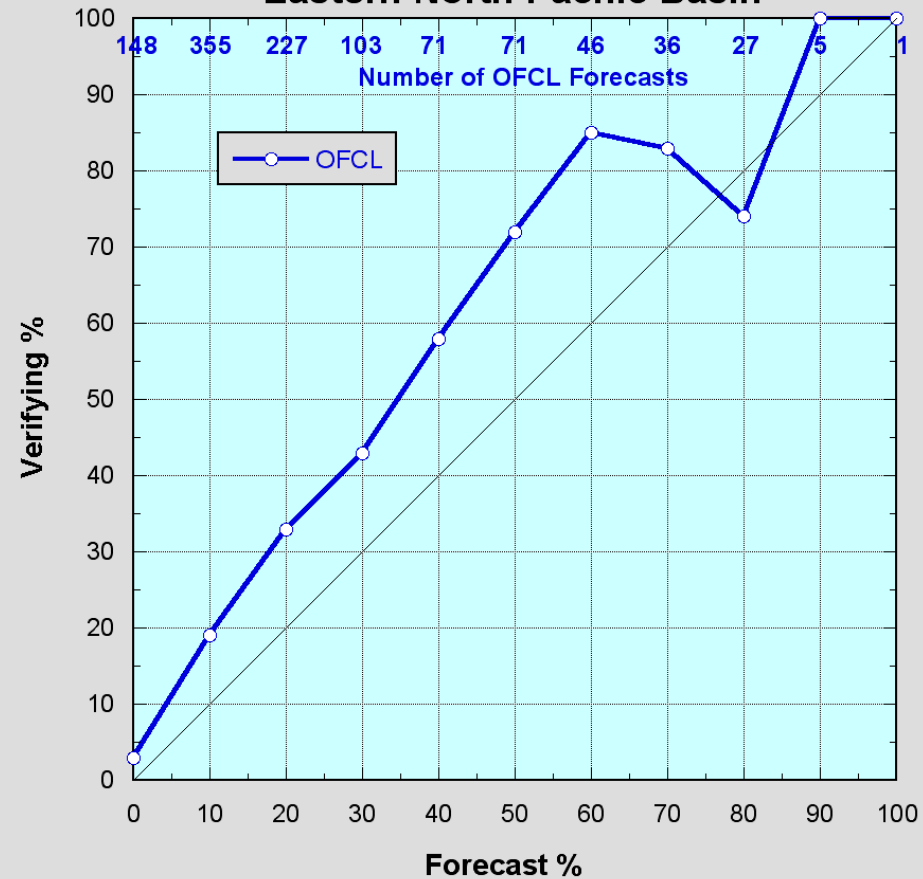
Genesis forecasts have reached the point where we can distinguish in 10% increments. Well calibrated in Atlantic, but low bias in the Pacific persists (even though we know about it).