

Central Pacific Hurricane Center

**Challenges in 2015;
New 2016/17 products/services;
& Research requirements.**

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2016 Tropical Cyclone Operations & Research Forum/70th IHC

2015 Challenges

- El Nino Teleconnections and basin hyper-activity:

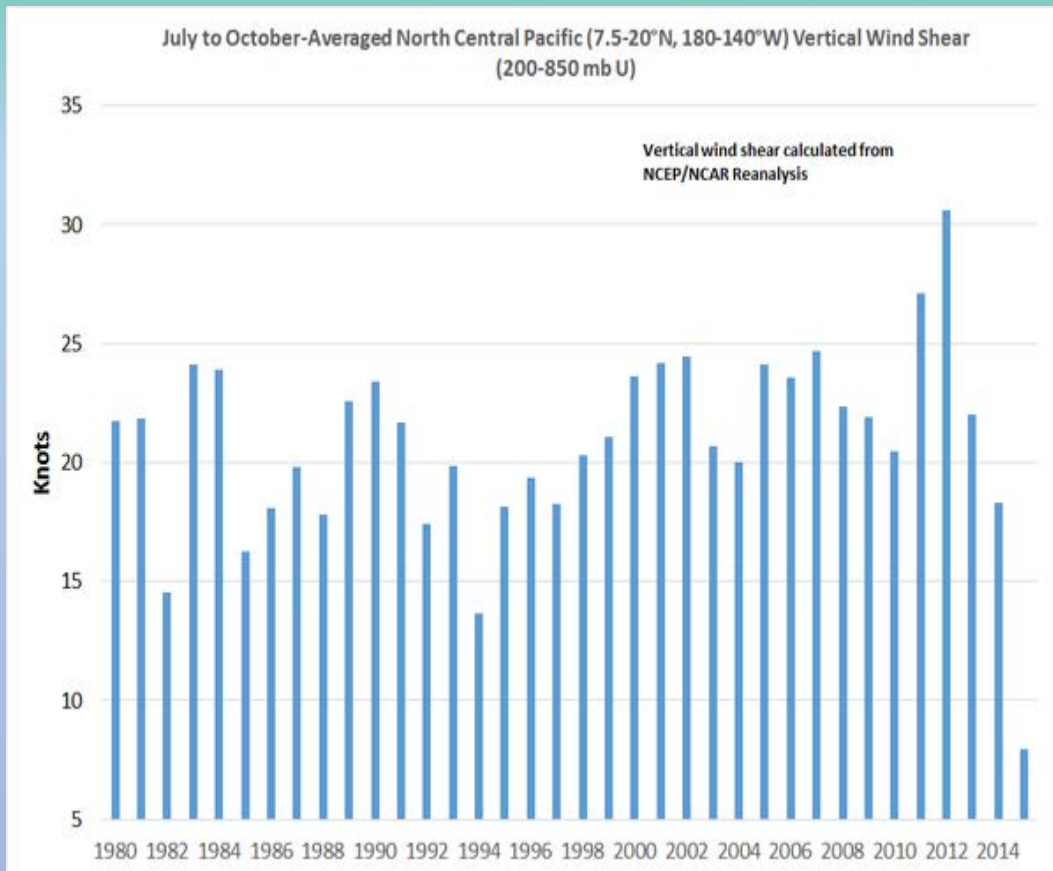
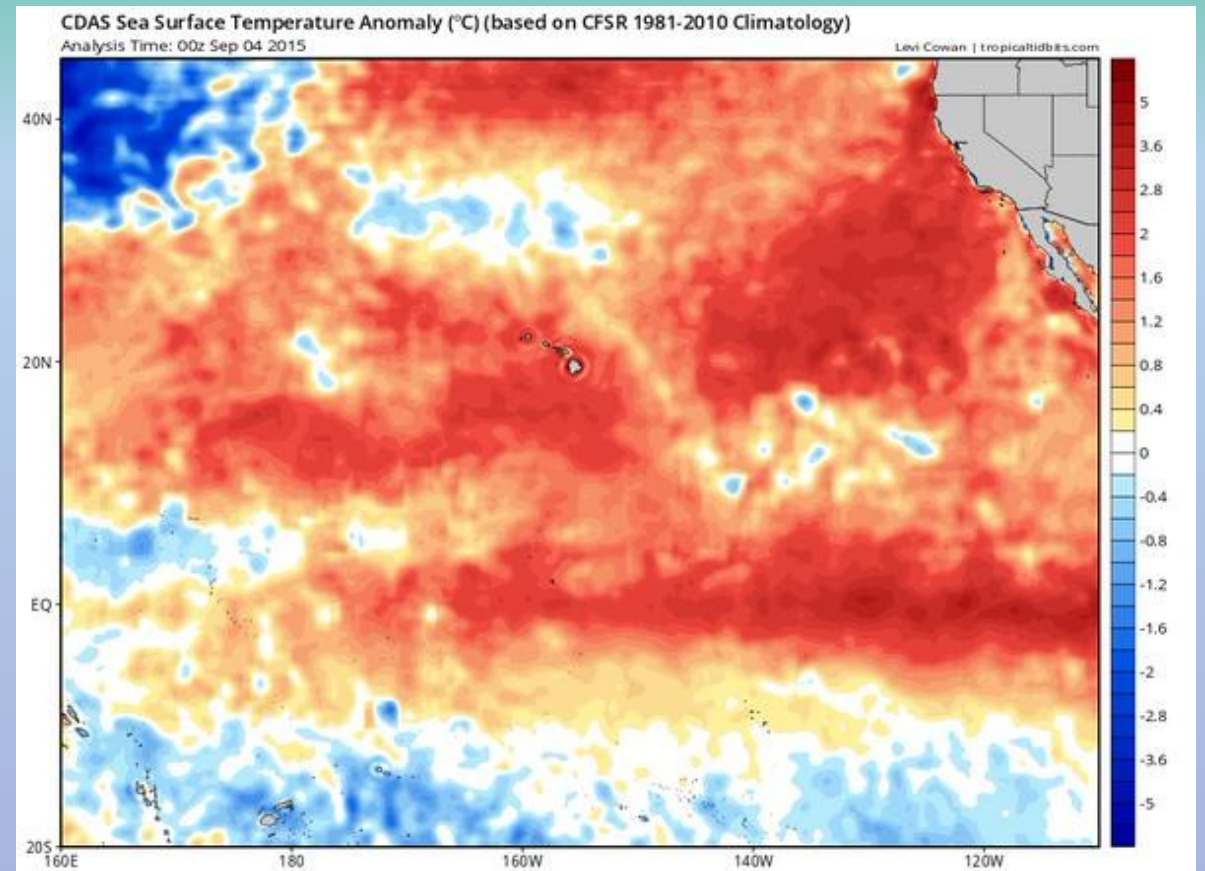
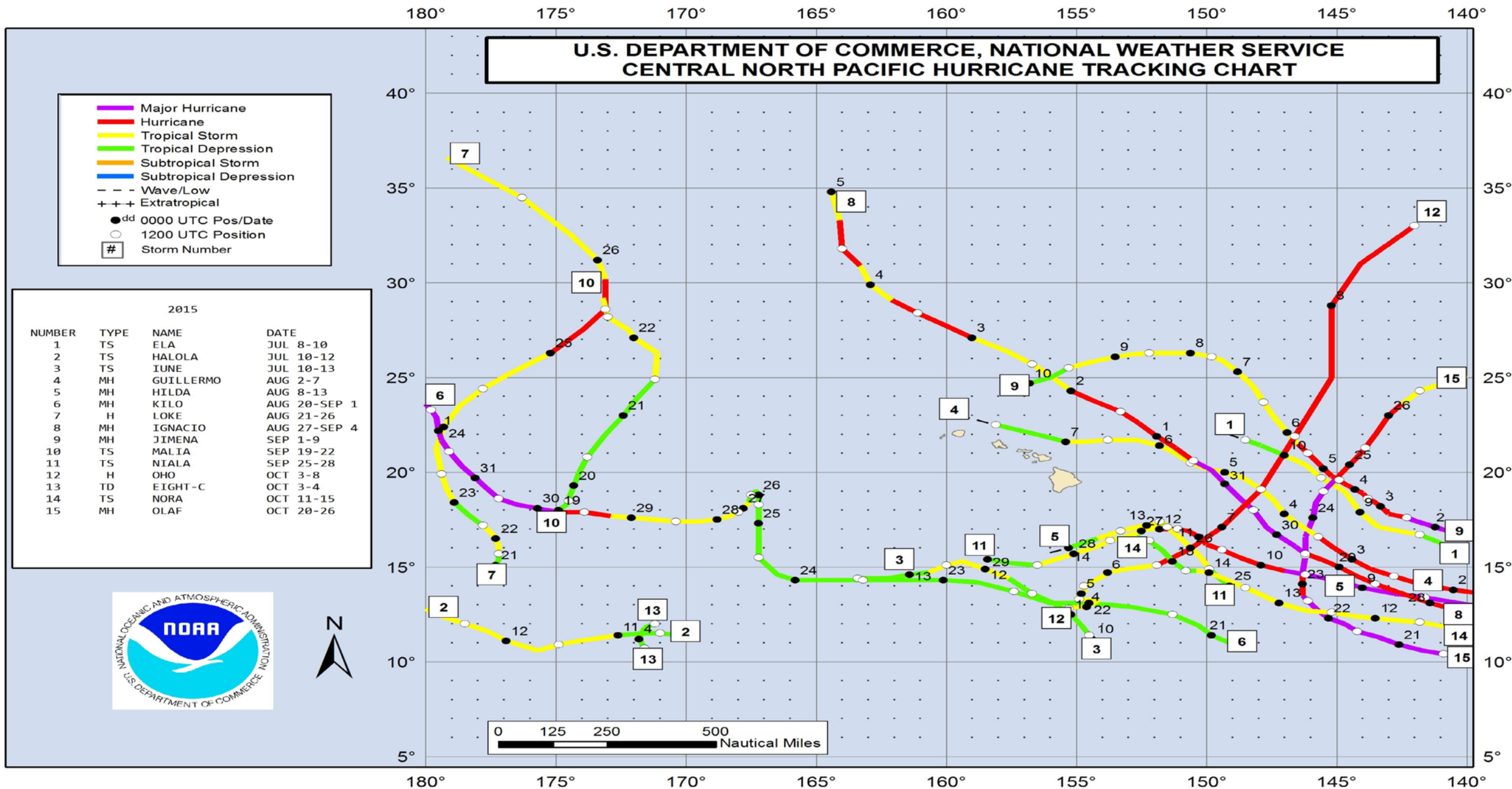


Image courtesy Philip Klotzbach





Special thanks to Kevin Kodama

2015 Challenges

- El Nino Teleconnections and basin hyper-activity:
 - Record number of TCs** in a single season (15); with multiple concurrent TC events; more days with multiple TCs in 2015 than in all other years combined since 1970
- Record number of TC genesis events (10; including 9-C and Pali)
 - 1) anticipating genesis time and track of developing TC;
 - 2) coordinating with CARCAH, which requires ~72 hours lead time for Hawaii
 - 3) Most reconnaissance flying time ever in the basin; 6 separate cyclones flown – included Ignacio at peak intensity and Kilo at very weak intensity

2015 Challenges

- Unusual and non-climatological tracks
- IT security/Firewall/IP address challenges ATCF \leftrightarrow WCOSS
- CPHC not staffed for this type of workload - Placed stress on forecasters and managers to keep shifts filled
- Forecaster morale – difficult forecasts and OT
- “Off-season” development not too surprising or impactful with 9-C and Pali; although Pali presented forecast challenges

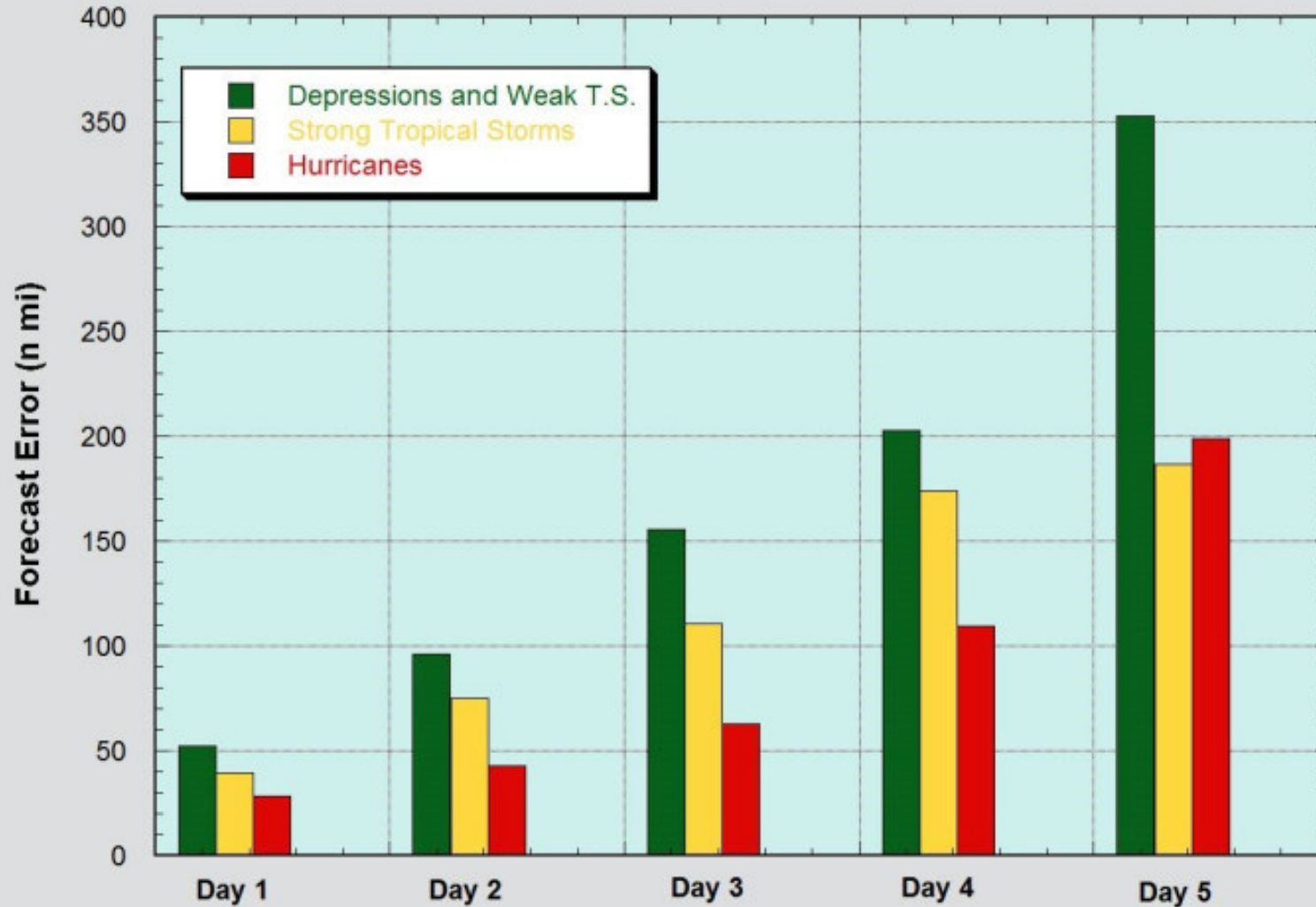
2015 Challenges

- Preliminary 2015 verification scores down from 2014 season
- 2015 48-hour: CPHC 83nm vs GPRA 77nm
CPHC 11.9 kt vs GPRA 12 kt
- WHY? High number of advisories written on weak/developing TCs
- Documented in James Franklin's NHC blog entry re: Atlantic's TS Erika

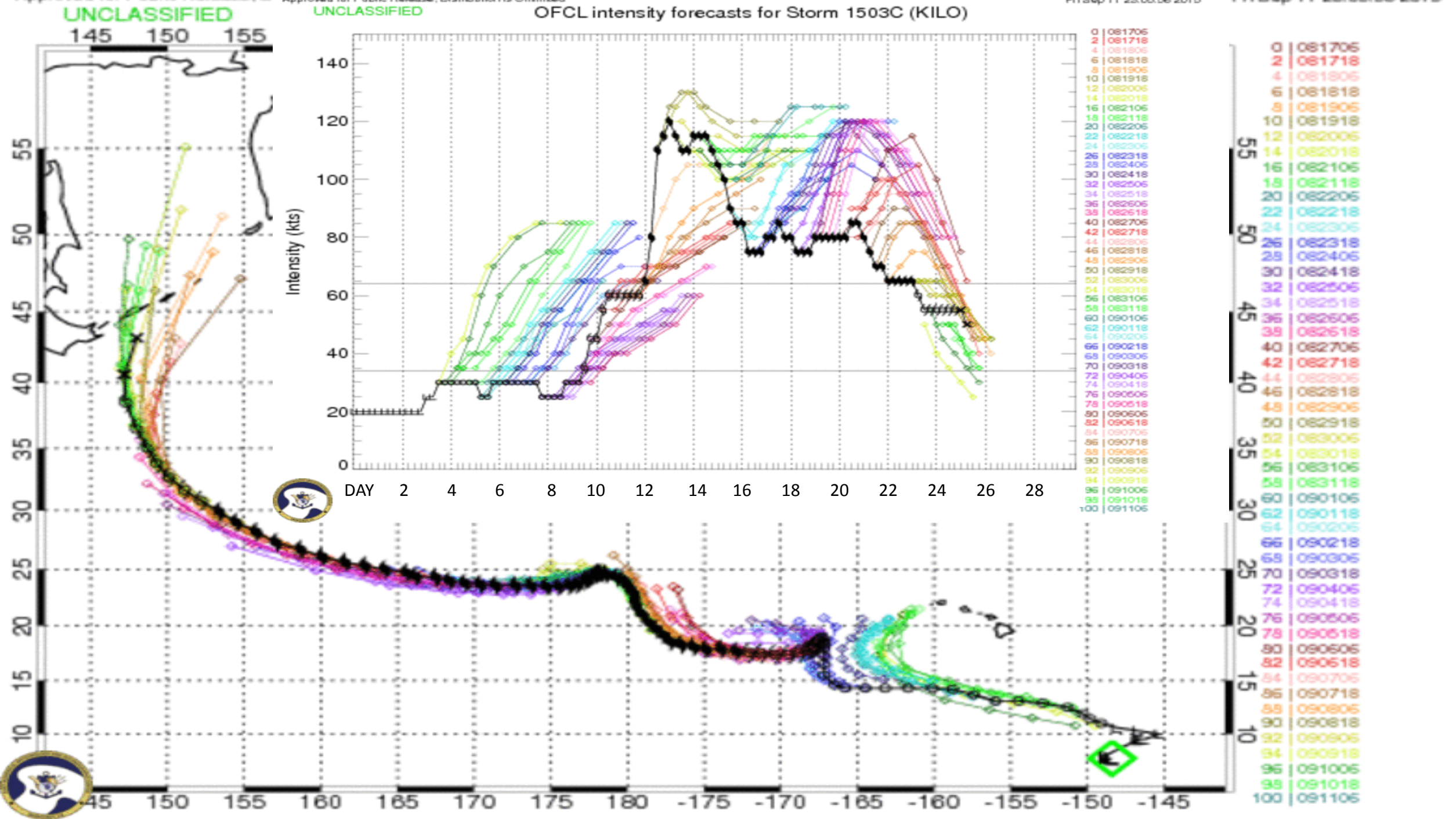
<https://noaanhc.wordpress.com/2015/09/10/after-further-review-tropical-storm-erika/>

2015 Challenges

2011-2014 Atlantic Track Errors by Initial Intensity



“Weak and disorganized tropical cyclones generally present us, and the computer models, with tougher forecast challenges”

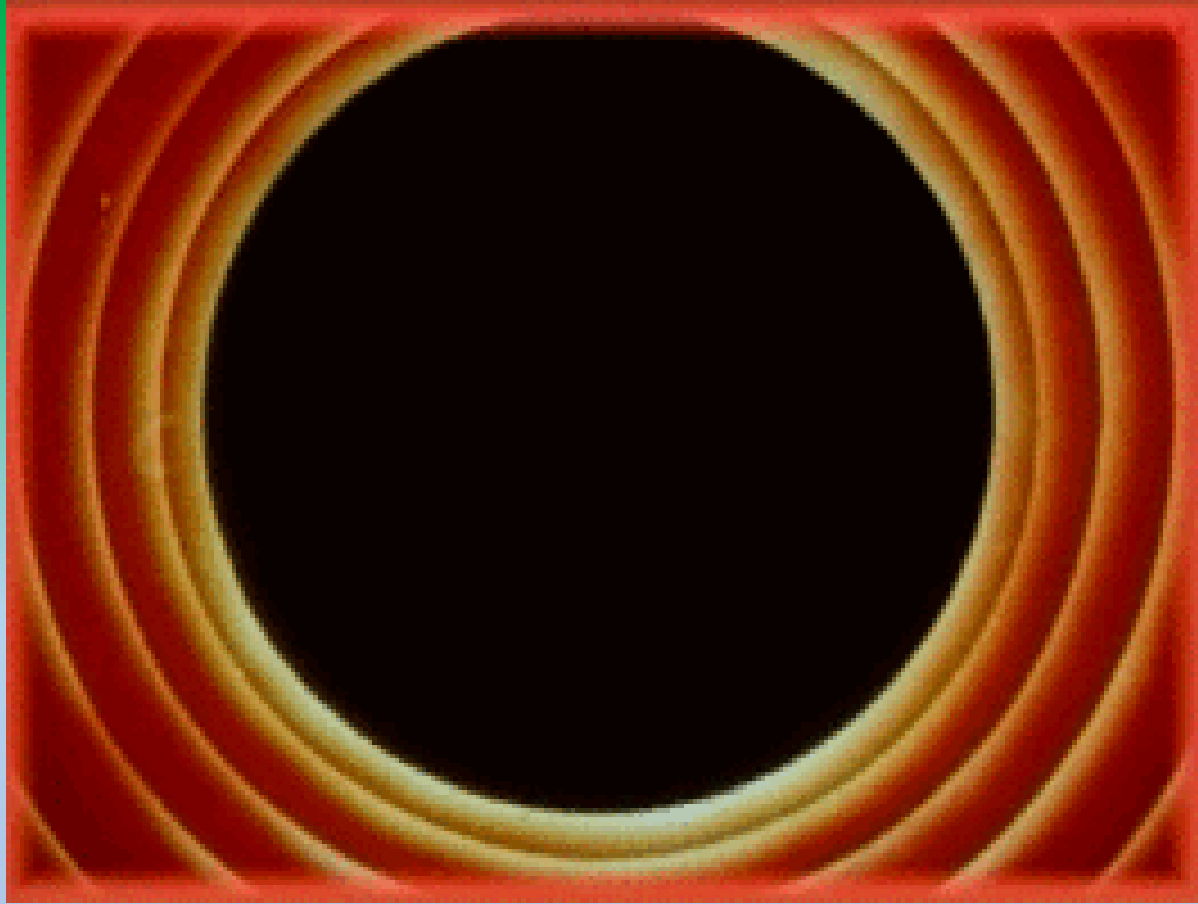


New for 2016/2017

- Introduction of mixed case text products
- 5-day Tropical Weather Outlook implementation
- SLOSH/SWAN→MEOWs/MOMs catalog for storm surge (Oahu +)
- Significant Wave Heights/Probability of Exceedance (2017)
- Coastally Integrated Wind Speed Probabilities – provide State of Hawaii chance of 34/50/64 kt winds (2017)
- Addition of Palmyra Atoll, Kiribati, Fanning and Teraina as warning points (2017)
- Dynamic cone of uncertainty based on model spread (?)
- Key Points added to TCD for potential high-impact systems (?)

Research Requirements

- Genesis and the timing of such events; high POD & low FAR
- Guidance for intensity change; including statistically-based “guidance on guidance” for intensity and track
- Size/Structure analysis/forecasting; PWS implications
- Communicating the impacts/risk and inherent forecast uncertainties; improved data-visualization techniques
- Storm surge modelling for Hawaiian Islands
- TC tracks and interaction with island topography
- ATCF Support; A2 transition is expected to be a multi-year endeavor. Primary tool in forecast creation/dissemination
- GOES-R data and maximizing forecaster comprehension/utilization



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