Introducing the NinJo Hurricane Layer 
“NICHE”

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What is NinJo?

• NinJo is a comprehensive meteorological data display & visualization software
• Designed, developed and maintained by a consortium of the Canadian, German, Swiss, and Danish Meteorological Services
• Operational at MSC since 2008
• Java-based, cross platform design
• Product Work Bench (PWB) allows multitude of GUI-based product creation
NinJo Hurricane Layer- Introduction

• “NICHE” - NInJo Canadian (Cyclone) Hurricane Editor
• CHC graphic & text product production tool that integrates into the NinJo Product WorkBench (PWB) and the Interactive Graphical Editor (IGE)
• Will be part of NinJo version 1.6 to be installed in upcoming RI scheduled for May, 2012.
• Will be used operationally in 2012 Hurricane Season for track map & FXCN3x technical discussion bulletin
• Existing Hurricane GUI will be maintained & used for backup if required
“Old” Hurricane GUI
Hurricane GUI - background

- The Hurricane GUI (Graphical User Interface) is a mission-critical application used by forecasters of the CHC
- Primary function: to produce technical bulletin and graphical products for CHC
- Interactive track editor for storm position, intensity, pressure, wind radii
- Can overlay satellite, lightning, surface obs, some NWP
- Also used to display NHC storm tracks
- Has built-in models for TC wind field distribution, “trapped fetch” wave growth
- Interface to TC climatology viewer
Why Replace Existing Hurricane GUI?

- Software now 15+ years old; originally designed for HP workstation – never worked 100% correctly on current platform
- Hurricane GUI was completely designed and written in-house by MT’s (main author now retired)
- Has become increasingly buggy and crash-prone in recent years
- Requires annual and ongoing IT support

All these factors made HURR GUI an excellent candidate for porting into NinJo
HURR-GUI into NinJo - timeline

- April, 2010: Began initial draft of req’ments document
- Feb-Mar, 2011: Draft req’ments completed in time for NinJo consortium meeting in Germany
- Mar-Jul, 2011: Development team assigned to NinJo HURR GUI, followed by numerous teleconferencing and e-collaborations
- Aug, 2011: Developers release first build version of NinJo Hurricane GUI
- Sep-Feb, 2012: Ongoing testing/feedback between CHC & developers for subsequent builds
- Mar-May, 2012: UAT completed, training (ongoing)
NinJo Hurricane Layer V1.0 – Main Benefits

- Fully integrated into NinJo & PWB – any existing NinJo layers can be overlayed in conjunction with Hurricane Layer
- Hurricane track nodes treated as Met Objects (event-based forecasting)
  - From WMO: “Met Object: A meteorological object is a feature limited in space and time (point, line, area, volume) with certain attributes representing a meteorological phenomenon or concept. Examples: cloud system, precipitation area, front, pressure centre.”
- Takes advantage of NinJo’s graphic capabilities and overlays (user interface & product output)
- Can initialize CHC track with any existing NHC track with one click – ensures consistency with NHC products
NinJo Hurricane Layer V1.0 – Main Benefits (cont’d)

- Ability to insert a forecast node mid-track, interpolate any track to/from 12h, 6h, 3h nodes, as well as insert a non-standard time node (e.g. a “landfall” node)
- All storm classes available for any node (Tropical, Sub-Tropical, Post-Tropical)
- Graphic & Text output products produced using predefined “Production favourites” – Automatically adds labels, proper formatting, etc – Means more consistent & error-free product
- Both graphic and text products are published simultaneously
- One-click “Best Track” generation
NinJo Hurricane Layer

Sample Functionality
NinJo Hurricane Layer – Example
NinJo Hurricane Layer – Example – Draw New Track
NinJo Hurricane Layer – Example – Draw New Track
NinJo Hurricane Layer – Example – Draw New Track – cont’d
NinJo Hurricane Layer – Example – Draw New Track – cont’d
NinJo Hurricane Layer – Example – Draw New Track – cont’d
NinJo Hurricane Layer – Example – Draw New Track – cont’d
NinJo Hurricane Layer – Example – Edit cyclone properties
NinJo Hurricane Layer – Example – Edit bulletin properties
NinJo Hurricane Layer – Example – Load NHC/Guidance Track
NinJo Hurricane Layer – Example – Load NHC Track
NinJo Hurricane Layer – Example - Import NHC track
NinJo Hurricane Layer – Example – Import NHC Track
NinJo Hurricane Layer

Sample Output
Graphic Products
“Old” Hurricane GUI Track Map
“New” 2012 NinJo Hurricane Layer
CHC Track Map
“New” 2012 NinJo Hurricane Layer
Track MAP – NHC Track
NICHE – 2012 CHC Track MAP w/ NHC Track
NinJo Hurricane Layer – Animation
Past Track w/ Satellite
NinJo Hurricane Layer – Animation Forecast Track w/ NWP
NinJo Hurricane Layer – Animation
Forecast Track w/ NWP
NinJo Hurricane Layer – Future Developments

- Graphic display radius of gale/storm/hurricane force winds
- Track error “Cones”
- Auto calculation of initial motion
- Auto generate best-track data
- More built-in error checking
- Shape File output (for ingestion into other GIS software)
- Ingestion and display of various foreign track models / guidance
- CHC TC Warning editor / breakpoint generator
- Development of possible new graphic products (rain/wind impact swaths, probabilities, etc.)
- Implement Trapped Fetch Wave Model [separate layer?]
- TC Climatological Viewer (HURDAT data)
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NinJo Hurricane Layer

Questions / Comments?