FPHLM Response To ProTeam's Report on the Revised Submission Document

Presented to the FCHLPM on August 17, 2011

Editorial Revisions Since Last Submission

- The submission document has been thoroughly re-edited.
- All of the changes in the submission document since June 8 are editorial in nature. None of the changes should lead to a different interpretation of the material presented.
- No substantive material added or deleted.
- New procedures and software were used to enhance the editorial process.

Editorial Changes

- Standardized on Word 2010.
- Converted to Bibliography Source Manager for references and citations. Used APA style.
- Defined styles for titles, headings, disclosure text, figures, tables, etc., for consistent look.
- Automatic cross-referencing of figure and table numbers to avoid incorrect numbering. Numbers were checked.
- All references (around 400) checked by CS team to verify that article can be found.

Editorial Changes

- Ensured consistent fonts and font characteristics (e.g. Italicization) between equations and text. This sometimes required inserting inline equations into the text.
- Ensured acronyms defined at first usage.
- Terms in equations are defined.
- Consistent word usage (e.g. “ZIP” vs “Zip”).
- Checked for typos, word usage, clarity and accuracy.

Editorial Changes

- All document entry done by one person with advanced knowledge of Word.
- Each expert reviewed PDFs of the document for accuracy, and sent changes to document entry person.
- Editors reviewed entire document after each of many iterations.
- On-site meetings held to review the document.

Overall PT Concern

- 1) Fedex/Kinko’s printed the wrong document. They have acknowledged the error in a letter to the Commission.
- The correct file was given to Kinko’s for document printing. They had prior versions of our submission documents in a folder for our model name. They erroneously printed the wrong version.
- The printing and shipping was done from a centralized location in Orlando. We were not able to see the document prior to being sent to the Commission.

Overall PT Concern

- 2) The Professional Team has noted that the deductible formulae that appear on pages 283 and 284 of the third re-submission have been changed from those that were presented to the Professional Team in March (with no change in June)...

Response

- There has been no change in the deductible calculation. The changes in the document are strictly editorial in nature and did not correct any error.
- The equations are conceptual in nature to illustrate the method. The equations are not essential as the method is described in the submission text and in the Primary Binder, and that has not changed.
- The algorithm and code has not changed since 2007. The PT has thoroughly reviewed the methodology.

Nature of Changes

- Removed summation limits which were clunky, use somewhat nonstandard notation, are understood from context, and more completely defined in the model documentation
- Variables relabeled to more meaningful names to facilitate the definition of the terms (as per Acceptability Process) and enhance clarity. E.g. “$f(X_i)$” -> “C_i” for Contents.
- Commas added to separate parameters
- “ALE” relabeled as “TE”

Overall PT Concern

- 3) There are instances where some material is deleted in red (correct color) and then the same material is inserted in blue (correct color), but there is no apparent change. Examples: Page 25 with (c, θ); Page 26 with (δc, δθ, δr) and δa; Page 74 with high; Page 254 with ZIP.

Response

- In all examples cited by the PT except one, there was a change.
- In some cases, the change was made to ensure consistent font usage between equation and text. On some computer systems, the differences in fonts can be very noticeable and possibly confusing, while on others they may be almost undetectable. Nonetheless, changes can be seen if one looks closely.
- Changes were made and were properly recorded by the software. We did not go out of our way to mark them, or annoy the PT.

Details – Page 25

$$\Delta x = c\cos(\theta)\Delta t / \cos(y)$$

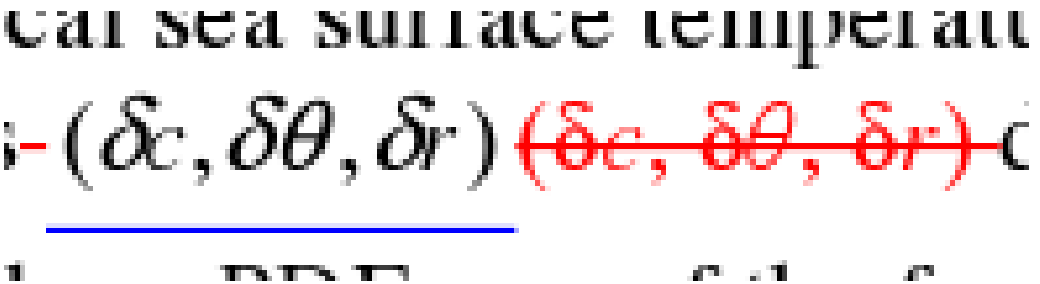
$$\Delta y = c\sin(\theta)\Delta t$$

$$\Delta p = w\Delta t$$

e of the storm, (c, θ) ~~(c,θ)~~ are

central pressure. w is the rate

Details – Page 26



Details – Page 26

$$PDF(\delta a) = A(\delta a, a, x, y)$$

δa ~~δa~~,

Details – Page 74

Before: mid-high rise
After: mid/high-rise

Granted, the change could have been made more efficiently.
Sometimes faster to retype than do surgery.
Nevertheless a change to the word was made!

Part B

- Items 1 and 2: We were not sure what the proper date should be for pages 2 and 6, given the unprecedented (for us) appeal situation.

Part B

- Item 3: A word (“changes”) was omitted in the sentence. This typo dates back to the first certification of the model. Fixed.
- Item 4: Track change error, does not effect final document. Fixed.
- Item 5: Word “monthly” misspelled. We have since discovered that Word does not spell check words in the new bibliography database. Fixed.

Part B

- Item 6: Web links are ephemeral and cannot be guaranteed to be valid for any length of time. Links are primarily provided for supplemental information and are not authoritative. The submission material does not critically depend on these links. We should probably delete most of them. We have updated them.

Part B

- Items 7-9: These are minor anomalies in the track changes. Figure and table numbers are “fields” which are not properly track changed by Word. These have to be done “by hand”. Fixed.
- Item 9: Typos in Tables: “build” -> “built”, missing row header (Word bug), extraneous hyphen (“2002-present-”). Fixed.
- Item 10: Two words missing in the Form title. Fixed.
- Item 11: Figure axes not labeled. Figure was repeated twice earlier in the document and in those instances there was description of the axes. Carry-over from prior years. Fixed.

Part B

- Items 13 and 14: These pages were generated by a separate document, in Excel which does not record track changes, and have not changed since the original submission (V4.0). Footer should nevertheless be updated. Fixed.

Response Summary

- A.1): We deeply regret the error made by Fedex/Kinko’s. They have sent a letter to the Commission acknowledging the error.
- A. 2): Non-issue as no changes in deductible calculation methodology were made.
- A. 3): Non-issue, track changes were doing what they were supposed to do.

Final Comments

- The final document without track changes is 343 pages, not including long appendices (such as Form A-6)
- The track change document is 460 pages without appendices
- The number errors, all very minor, are very few for a document of this size.
- It is virtually impossible to produce an error-free document. We have found numerous similar errors in another modeler's final document that has been approved by the Commission

Examples of Errors from Another Modeler's Submission Document

- We show these only to illustrate that is it very difficult to produce an error-free document
- From the most recent Submission (2009)
- Final document posted on FCHLPM website

p. 22
Document not available at link:
Blake, E. S., E. N. Rappaport, and C. W. Landsea. “The Deadliest, Costliest, and Most Intense United States Tropical Cyclones from 1851 to 2006 (and Other Frequently Requested Hurricane Facts).” NOAA, Technical Memorandum NWS TPC-5, 43 2007.
Available at: http://www.aoml.noaa.gov/hrd/hurdat/ushurrlist18512007.txt

password protected:

DeMaria Extended Best Track (EBTRK) - Available at ftp://ftp.cira.colostate.edu/demaria/ebtrk/

Demuth, J., M. DeMaria, and J.A. Knaff. “Improvement of advanced microwave sounder unit tropical cyclone intensity and size estimation algorithms.” Journal of Applied Meteorology, 45, 1573-1581). 2006.
Available online at ftp://ftp.cira.colostate.edu/demaria/ebtrk/.

p.23
Document not available at link:
Jarvinen, B.R., C.J. Neumann, and A.S. Davis, 1984: A Tropical Cyclone Data Tape for the North Atlantic Basin, 1886-1983: Contents, Limitations, and Uses. NOAA, Technical Memorandum NWS-NHC-22, 21 pp. (HURDAT).
Available at: http://www.aoml.noaa.gov/hrd/hurdat/ (1851-2006).

p.24
No EXBTK at site
UNISYS Extended Best Track (EBTRK) - Available at: http://www.weather.unisys.com/hurricane/atlantic/index.html

Numerous instances of inconsistent style in references, missing volume and page numbers. Source or journal name missing, etc.

Example:

p24,26 Inconsistent citations of same journal, missing volume and page no.

Powell, M. D., S. H. Houston, L. R. Amat, N. Morisseau-Leroy, 1998: The HRD real-time hurricane wind analysis system. J. Wind Engineer. Ind. Aerody., 77&78, 53-64.

Mehta, K.C, Cheshire, R.H., and McDonald, J.R., “Wind Resistance Categorization of Buildings for Insurance.” *Journal of Wind Engineering and Industrial Aerodynamics*, 1992.

Unreadable text in Table

Parameter	Description	Previous Model	Current Model
GradWind (V_{max})	Gradient level wind computed at R_{max}	Function of C_p, P_w, R_{max}, *Lat*, *K*. - P_w = 1013.2mb - *K* computed using data through 1979	Function of C_p, P_w, R_{max}, *Lat*, *K*. - P_w = Function(*Lat*) - *K* recomputed using data through 2007
GF	Averaging Time or Gust Factor	Function of Z_o. Based on 2001 LULC. Averaged over all directions.	Function of Z_o. Based on 2007 LULC. Directional.
GWRF	Gradient wind reduction factor	Constant (0.9) at all locations.	Stochastic. Function of *r* and *PWF* at different locations.
RadialDecay	Wind variation with distance from the eye	NWS-23. Function of *r* and R_{max}.	Willoughby et al., 2006. Function of *r*, R_{max}, *Lat* and V_{max}.
FF	Friction Factor	Function of Z_o. Based on 2001 LULC. Averaged over all directions.	Function of Z_o. Based on 2007 LULC. Directional.
Peak Weighting Factor (PWF)	Input parameter for radial GWRF adjustment function	None	Stochastic variable based on computed values for historical events.

where

C_p = central pressure
V_{max} = storm maximum wind speed (flight level)
P_w = peripheral pressure
R_{max} = radius of maximum winds (flight level)
Lat = latitude
K = density coefficient
Z_o = effective roughness length
r = distance from the eye
PWF = peak weighting factor
Angle = angle between wind direction and storm moving direction

Case error in variable name (t vs T). Case matters in equations.

The functional form of the pressure deficit decay function is:

$$\Delta P_t = P_p - P_{eye \cdot lf}\left(1 + LF_{offset} * t^{C_1} * \exp(-C_2 * t)\right)$$

where:

ΔP_t = Pressure deficit at a given time after landfall
P_p = Atmospheric pressure at the periphery of the storm
$P_{eye\ .lf}$ = Central pressure of the storm at landfall
LF_{offset} = Initial reduction of the pressure deficit at landfall
T = Time after landfall in hours
C_1 = Time shaping constant
C_2 = Exponential decay rate constant

Page 108, Table 6: 3 variations of word: “low rise”, “low-rise” and “lowrise”

Word “Appurtenant” misspelled in Table 8 (p. 113) and Table 9 (p. 125)

Page 324: 3 variations of the name of the H*Wind product: “h-Wind”, “hWind”, “H*WIND””

Garbled Header.

Form V-2: Mitigation Measures – Range of Changes in Damage **INDIVIDUAL MITIGATION MEASURES**		**PERCENTAGE CHANGES IN DAMAGE ((REFERENCE DAMAGE RATE - MITIGATED DAMAGE RATE) / REFERENCE DAMAGE RATE) * 100**									
		FRAME STRUCTURE					**MASONRY STRUCTURE**				
		WIND SPEED (MPH)					**WIND SPEED (MPH)**				
		60	**85**	**110**	**135**	**160**	**60**	**85**	**110**	**135**	**160**
	REFERENCE STRUCTURE	-	-	-	-	-	-	-	-	-	-
OOF ENGTH											
	BRACED GABLE ENDS	12.6	16.3	14.9	10.5	6.5	12.3	15.9	14.3	10.2	6.4

No label for x-axis.

Figure 36: Probability Distribution around the Mean Damage Ratio