

Potential Deficiencies in Modeler Submissions 2013 Standards

Prepared by the Professional Team for the Florida Commission on Hurricane Loss Projection Methodology

December 16, 2014

The Professional Team held conference calls on November 23, 2014, and December 2 & 3, 2014, to discuss the model submissions received by November 3, 2014, for review and determination of acceptability under the 2013 Standards. The following items are submitted to the Commission as potential deficiencies to be addressed at the December 16, 2014, Commission meeting. The Professional Team does not deem it necessary for any of the modeling organizations to submit Form S-6.

The Professional Team will issue a pre-visit letter containing specific issues and questions which the Professional Team has identified that they intend to cover while on-site. The Professional Team Reports prepared during the on-site reviews will include the pre-visit letter and a list of all corrections to be made in the submissions prior to the meetings to review the models for acceptability under the 2013 Standards.

AIR Worldwide Corporation – AIR Atlantic Tropical Cyclone V15.0.0, Software Program Touchstone® V2.1.0, Software Platform Touchstone® V2.1.0

1. A general description of any trade secret information that will be presented to the Professional Team is not included; non-responsive to Acceptability Process II.A.3 requirement (page 46) in the *Report of Activities* as it is the modeling organization's responsibility to identify in the submission the anticipated trade secret items that will be shown to the Professional Team during the on-site review.
2. Standard G-1, Disclosure 4 (pages 27-39)
Response is incomplete as NOAA Technical Memorandum NWS NHC-6 provided in response to Standard M-1, Disclosure 1 (page 82) and Standard M-2, Disclosure 7 (page 88) is not included in the List of References.
3. Standard G-1, Disclosure 5.A (page 40)
Response is incomplete as gridded intensity, mentioned in item b, has not been defined in the submission.
4. Standard G-1, Disclosure 5.A (page 40)
Response is incomplete as the change in vulnerability function year-built categories is not included.

5. Standard G-2, Disclosure 9 (page 68)
Response is non-responsive to the standard requirement that the individual signing Form G-6 (page 291) shall have an advanced degree in computer/information science. Anjelo Jeyarajan has an MBA which does not qualify as an advanced degree relating to computer/information science.
6. Standard M-3, Disclosure 1 (page 94)
Response is incomplete as no attribution is given in Table 7 for the databases used for surface terrain characteristics and Rmax EBT, RADAR data. Rmax EBT has not been defined in the submission.

Applied Research Associates, Inc. – HurLoss Florida Model 7.0

1. Standard G-1, Disclosure 5.B (pages 26-28)
Maps in Figures 4-8 are non-responsive to the Acceptability Process II.A.5.e.2 requirements (page 47) in the *Report of Activities*.
2. Standard G-3, Disclosure 3 (page 42)
Response is non-responsive as the data, method and process used to convert from latitude and longitude to arrive at a ZIP Code has not been described.
3. Standard M-4, Disclosure 9 (page 61)
Response is non-responsive as the exhibit for Hurricane Jeanne (Figure 14 in response to Standard M-5, Disclosure 2, page 65) is referenced here as supporting evidence for this disclosure. Figure 14 is unchanged from the previous submission so does not incorporate the latest roughness information used in the model.
4. Standard M-5, Disclosure 2 (page 66)
Response is non-responsive as the use of unchanged Figure 15 from the previous submission is inconsistent with the response to Standard M-4, Disclosure 11 (page 61).
5. Form M-1.A (pages 149-150)
Response is non-responsive as historical frequencies used in the table are unchanged from the 2013 *Report of Activities* and represent statistics from the August 2013 release date of HURDAT2. Instructions specify that Form M-1 should be updated to be consistent with the release date of HURDAT2 used by the modeling organization.
6. Form M-1.E (page 149)
Response is non-responsive as multiple storms should have been adjusted to be consistent with the release date of HURDAT2 used by the modeling organization.
7. Form M-2 (pages 153-157)
Response is non-responsive as the legends and map colors do not follow the Acceptability Process II.A.5.e.2 requirements (page 47) in the *Report of Activities*.
8. Standard V-1, Disclosure 18 (page 91)
Response is unclear as Figure 25 on page 87 does not address rainfall rate and rain water infiltration.

9. Form A-2 (pages 183-185)

Response is non-responsive as the list of hurricanes used in the table are unchanged from the 2013 *Report of Activities* and represent the minimum number of hurricanes from the August 2013 release date of HURDAT2. Instructions specify that Form A-2 should be updated to be consistent with the release date of HURDAT2 used by the modeling organization.

10. Form S-1 (page 161)

Response is non-responsive as historical probabilities and frequencies used in the table are unchanged from the 2013 *Report of Activities* and represent statistics from the August 2013 release date of HURDAT2. Instructions specify that Form S-1 should be updated to be consistent with the release date of HURDAT2 used by the modeling organization.

11. Form S-3 (page 164)

Response is incomplete as footnotes (1) and (2) in the column Stochastic Hurricane Parameter (Function or Variable) are not defined.

EOECAT, Inc. – EOECAT Florida Hurricane Model 2015, Platform Risk Quantification and Engineering

1. Several Tables throughout the submission do not include table numbers; non-responsive to Acceptability Process II.A.5.c requirement (page 47) in the *Report of Activities*.

2. A general description of any trade secret information that will be presented to the Professional Team is not included; non-responsive to Acceptability Process II.A.3 requirement (page 46) in the *Report of Activities*.

3. Standard G-1, Disclosure 5.A.1 (pages 27-28)

Response is incomplete as all mitigation measures that have been modified as given in V-3, Disclosure 1 (pages 102-103) are not included.

4. Standard G-1, Disclosure 5.A.2 (page 28)

Response is non-responsive as a list of all other changes is not included.

5. Standard G-1, Disclosure 5.C (pages 30-33)

Maps in Figures 4-9 are non-responsive to the Acceptability Process II.A.5.e.2 requirements (page 47) in the *Report of Activities*.

6. Standard G-2, Disclosure 3.B (page 42)

Response is incomplete as the independent reviews are not included in the Appendix.

7. Standard M-2, Disclosure 1 (page 51)

Response is unclear as the description provided for the functional dependence of Rmax on other variables is inconsistent with the response given on Form M-3.B (page 171).

8. Form M-1 (page 164)
Response is non-responsive as the Florida By-Passing historical number and rate have changed but no explanation is given.
9. Form M-2 (page 168)
Response is incomplete as the legend for Figure 29.b is missing.
10. Standard V-1.D (page 83)
Standard and response are incomplete as they were not updated from the 2011 *Report of Activities* or submission.
11. Standard V-1, Disclosure 1 (page 84)
Response is unclear as the statement is inconsistent with the response given to Standard G-1, Disclosure 5.A, items 5-7 (page 27).
12. Standard V-1, Disclosures 9 & 10 (page 89)
Responses are unclear as the statements are inconsistent with the response given on Standard V-1.E (page 83).
13. Standard V-1, Disclosure 13 (page 89)
Response is non-responsive as it does not address construction types for renters and condo-unit owners.
14. Standard V-2, Disclosure 5 (page 97)
Response is incomplete as a flowchart is not included.
15. Standard C-5, Disclosure 3 (page 149)
Response is unclear as the first sentence of the disclosure is unintelligible.
16. Form A-3A (pages 218 & 221)
Maps in Figures 44 and 47 are non-responsive to the instructions provided for the form.
17. Form A-3B (pages 235 & 238)
Maps in Figures 49 and 52 are non-responsive to the instructions provided for the form.

Florida International University – Florida Public Hurricane Loss Model 6.0

1. Figure numbering is non-responsive to Acceptability Process II.A.5.c requirement (page 47) in the *Report of Activities*.
2. Standard G-1, Disclosure 4 (pages 71-104)
Response is incomplete as the Statewide 2004-2011 Florida Water Management District data set provided in response to Standard G-1, Disclosure 5.A.1 (page 105) is not included in the List of References.
3. Standard G-1, Disclosure 5.A.1 (page 105)
Response is unclear as the reformatted NOAA historical database was renamed to HURDAT2 in 2012.

4. Standard G-1, Disclosure 5.A.3 (page 106)
Response is unclear as the latest version of HURDAT2 was released in May 2014.
5. Standard G-1, Disclosure 5.C (pages 109-111)
Maps in Figures 20-22 are non-responsive to the Acceptability Process II.A.5.e.2 requirements (page 47) in the *Report of Activities*.
6. Standard G-2, Disclosure 1.B (page 113)
Response is unclear as Figure 23 is unreadable in the printed version.
7. Standard G-2, Disclosure 2.C (page 117)
Response is unclear as Figure 24 is unreadable in the printed version.
8. Form G-2 (page 125)
Response is incomplete as the Name of Model and Mark Powell's professional credentials are not included.
9. Form G-3 (page 126)
Response is incomplete as Sneh Gulati's professional credentials are not included.
10. Form G-6 (page 129)
Response is incomplete as Shu-Ching Chen's professional credentials are not included.
11. Standard M-4, Disclosure 9 (page 145)
Response is non-responsive as it does not describe and justify the appropriateness of the databases used in the windfield validations.
12. Standard S-1, Disclosure 1 (page 171)
Response is incomplete as specific goodness-of-fit tests are not included for hurricane landfalling frequencies.
13. Form S-4.C (pages 202-205)
Response is unclear as Figures 48-53 use of common axis scales does not present a meaningful graphical representation.

Risk Management Solutions, Inc. – North Atlantic Hurricane Models, RiskLink 15.0 (Build 1625)

1. Acronym DLM (e.g., page 138) is not defined; non-responsive to the Acceptability Process II.A.5.l requirement (page 48) in the *Report of Activities*.
2. Standard G-1, Disclosure 5.A (page 36)
Response is incomplete as no response is included for Disclosure 5.A.2.
3. Standard G-2, Disclosure 3.B (page 54)
Response is non-responsive as independent peer reviews do not address the current standards, disclosures, or forms.

4. Form M-1.E (page 182)

Response is non-responsive as all hurricanes modified are not included.

5. Standard V-2, Disclosure 14 (page 130)

Response is unclear as the cited Table 44 does not address contents and time element vulnerability function relationships consistency with insurance claims data.