

Edits to the General Flood Standards
Flood Standards Development Committee Meeting
November 14, 2014

GF-1, Scope of the Computer Flood Model and Its Implementation

Standard

Professional Team:

- A. The computer flood model shall project loss costs and probable maximum loss levels for ~~personal residential property~~ insured damage to personal residential property from flood events.

Purpose

Professional Team:

This standard gives a high level view of the scope of the flood model to be reviewed, namely projecting flood loss costs and flood probable maximum loss levels for ~~personal residential property~~ insured damage to personal residential property from flood events. The definition of flood as used in this standard is defined in Section 627.715(1)(b), Florida Statutes. The scope of the computer flood model shall ~~be general~~ apply to all ~~reasonable aspects and~~ types of flooding determined to be scientifically feasible at a location (that is, where frequencies and severities of such events are available and can be projected) and shall not be limited to any specific subsets or types of flood peril.

AIR:

This standard gives a high level view of the scope of the flood model to be reviewed, namely projecting flood loss costs and flood probable maximum loss levels for personal residential property insured damage from flood events. The definition of flood as used in this standard is defined in Section 627.715(1)(b), Florida Statutes. The scope of the computer flood model shall be general to all reasonable aspects and types of flooding determined to be scientifically feasible (that is, where frequencies and severities of such events are available and can be projected) and shall not be limited to specific subsets or types of flood peril. Nothing in the flood standards or purpose statements shall preclude a model from projecting loss costs and probable maximum losses from the flood peril using separate models for various components of the peril (e.g. inland precipitation flood is modeled separately from storm surge flooding).

COMMENT: In order to prevent the standards from prescribing the methodology or approach taken by the modeler to handle the flood peril modeling.

Jack Nicholson:

This standard gives a high level view of the scope of the flood model to be reviewed, namely projecting flood loss costs and flood probable maximum loss levels for personal residential property insured damage from flood events. The definition of flood as used in this standard is defined in Section 627.715(1)(b), Florida Statutes. The scope of the computer flood model shall be general to all reasonable aspects and types of flooding determined to be scientifically feasible (that is, where frequencies and severities of such events are available and can be projected) and shall not be limited to specific subsets or types of flood peril.

It is recognized that “models” are complex and may include models within models which can be known as “sub-models” or “component models.” This would be expected for some approaches to flood modeling, although not a necessary requirement. And, it is recognized that such models, sub-models, or component models may be part of other models such as hurricane models or wave models, etc. This would not preclude their use as “part” of the flood modeling process. The Commission will take a broad view of the process or methodology that “ties” together the various models or sub-models. As such, the broader and more general model will be considered as the “flood model” under review given that it should result in one set of loss costs and one probable maximum loss curve. It is important that the general modeling approach be found acceptable and that any failure to meet a standard by the various models, component models, or sub-models necessary to model the nature of the flood peril would be viewed as unacceptable for flood modeling purposes. Therefore, a model, sub-model, or component model capable of modeling one aspect of the flood peril, such as coastal storm surge flooding or flood plain flooding, and otherwise meeting all the Commission standards could not be found acceptable without being combined with other models, sub-models, or component models that in their entirety accurately or reliably model the full scope and nature of the flood peril.

Disclosures:

Jack Nicholson:

6. Identify and describe the exposure dataset used for determining flood loss costs and flood probable maximum loss levels.

Audit

Professional Team:

1. The intent of the audit is to determine the capabilities of the flood model and to assess its implementation for purposes of ~~Florida~~-projected insured flood loss costs and flood probable maximum loss levels for Florida. Copies of all ~~representative or~~ primary technical papers that describe the underlying flood model theory and implementation (where applicable) shall be made available.

6.A. Flood model changes:

1. A summary description of changes that affect, or ~~believe~~are believed to affect, the personal residential flood loss costs or flood probable maximum loss levels,

6.C. Color-coded maps by rating area or zone reflecting the percentage difference in average annual zero deductible statewide flood loss costs based on the [to be determined] for each flood model component change:

QUESTION: Does the Commission want information about the waterways and lakes/dams, etc. that are considered in the flood model, either in these maps or via another means that can be cross-referenced?

RMS:

6.B. Percentage difference in average annual zero deductible statewide flood loss costs based on the [to be determined] for:

QUESTION: Would it be possible to get a sample dataset of exposures from NFIP for Florida to use for this basis?

Jack Nicholson:

6.B. Percentage difference in average annual zero deductible statewide flood loss costs based on a modeling organization specified, predetermined and comprehensive exposure dataset to be held constant during the review cycle for:

7. The exposure dataset used for determining flood loss costs and probable maximum loss levels will be reviewed.

GF-2, Qualifications of Modeling Organization Personnel and Consultants Engaged in Development of a Flood Model

Standard

Professional Team:

- B. The flood model and model submission documentation shall be reviewed by either modeling organization personnel or consultants in the following professional disciplines: [coastal engineering \(licensed Professional Engineer or advanced degree\)](#), [hydrology \(advanced degree\)](#), structural/wind engineering (licensed Professional Engineer or advanced degree), statistics (advanced degree), actuarial science (Associate or Fellow of Casualty Actuarial Society), meteorology (advanced degree), ~~coastal engineering (licensed Professional Engineer or advanced degree)~~, ~~hydrology (advanced degree)~~, and computer/information science (advanced degree). These individuals shall certify Forms GF-1 through GF-6 as applicable.

Disclosures:

Professional Team:

- 2.A. Provide in ~~a chart~~ [tabular](#) format (a) the highest degree obtained (discipline and university), (b) employment or consultant status and tenure in years, and (c) relevant experience and responsibilities of individuals currently involved in the acceptability process or in any of the following aspects of the flood model:
1. Meteorology/Hydrology
 2. Statistics
 3. Vulnerability
 4. Actuarial Science
 5. Computer Science
- 3.A. Provide reviewer names and dates of external independent peer reviews that have been performed on the following components as currently functioning in the flood model:
1. Meteorology/Hydrology ([including Coastal Engineering](#))
 2. Statistics
 3. Vulnerability
 4. Actuarial Science
 5. Computer Science

RMS:

- 2.A. Provide in a chart format (a) the highest degree obtained (discipline and university), (b) employment or consultant status and tenure in years, and (c) relevant experience and responsibilities of individuals currently involved in the acceptability process or in any of the following aspects of the flood model:
1. Meteorology~~+~~
 2. Hydrology

- ~~23~~. Statistics
- ~~34~~. Vulnerability
- ~~45~~. Actuarial Science
- ~~56~~. Computer Science

3.A. Provide reviewer names and dates of external independent peer reviews that have been performed on the following components as currently functioning in the flood model:

- 1. Meteorology~~/~~
- 2. Hydrology
- ~~23~~. Statistics
- ~~34~~. Vulnerability
- ~~45~~. Actuarial Science
- ~~56~~. Computer Science

5. Provide a completed Form GF-2A, Meteorological/~~Hydrological~~ Flood Standards Meteorologist Expert Certification. Provide a link to the location of the form [insert hyperlink here].

6. Provide a completed Form GF-2B~~3~~, ~~Meteorological~~/Hydrological Flood Standards Hydrologist Expert Certification. Provide a link to the location of the form [insert hyperlink here].

7. Provide a completed Form GF-~~34~~, Statistical Flood Standards Expert Certification. Provide a link to the location of the form [insert hyperlink here].

8. Provide a completed Form GF-~~4A~~5, Vulnerability Flood Standards Structural/Wind Expert Certification. Provide a link to the location of the form [insert hyperlink here].

~~9. Provide a completed Form GF-4B, Vulnerability Flood Standards Coastal Structural Expert Certification. Provide a link to the location of the form [insert hyperlink here].~~

COMMENT: Qualifications for coastal versus structural engineers don't really require different education and have two engineers will be redundant.

~~109~~. Provide a completed Form GF-~~56~~, Actuarial Flood Standards Expert Certification. Provide a link to the location of the form [insert hyperlink here].

~~1110~~. Provide a completed Form GF-~~67~~, Computer Flood Standards Expert Certification. Provide a link to the location of the form [insert hyperlink here].

AIR:

3.D. Provide a list of ~~organizations and~~ insurance regulators that have reviewed the flood model. Includes the dates and reasons or purpose of the reviews.

COMMENT: To avoid a requirement to reveal information that is considered client confidential.

Jack Nicholson:

3.D. Provide a list of ~~organizations~~ [rating agencies](#) and insurance regulators that have reviewed the flood model. Includes the dates and reasons or purpose of the reviews.

Audit

Professional Team:

1. The professional vitae of personnel and consultants engaged in the development of a flood model and responsible for the current flood model will be reviewed. Background information on [the professional credentials of](#) individuals providing testimonial letters in the submission shall be reviewed.

RMS:

2. Forms GF-1 (General Flood Standards Expert Certification), GF-2A (Meteorological/~~Hydrological~~ Flood Standards Meteorologist Expert Certification), GF-~~2B-3~~ (~~Meteorological~~/Hydrological Flood Standards Hydrologist Expert Certification), GF-~~3-4~~ (Statistical Flood Standards Expert Certification), GF-~~4A-5~~ (Vulnerability Flood Standards Structural/Wind Expert Certification), ~~GF-4B (Vulnerability Flood Standards Coastal Structural Expert Certification)~~, GF-~~5-6~~ (Actuarial Flood Standards Expert Certification), GF-~~6~~ [7](#) (Computer Flood Standards Expert Certification), and all independent peer reviews of the flood model under consideration will be reviewed. Signatories on the individual forms will be required to provide a description of their review process.

GF-3, Insured Exposure Location

Standard

Professional Team:

~~The Methodology for~~ geographic location and ~~determination or assignment of the~~ elevation ~~of a~~ ~~location~~ methodology shall be consistent and scientifically ~~justified~~ justifiable.

RMS:

The geographic location ~~and elevation~~ methodology shall be consistent and scientifically justified.

COMMENT: Elevation is a location specific and building specific attribute, such as construction class, and ground elevation and topography is an input into the hydrology module.

Purpose

Professional Team:

Flood model outputs, including flood loss costs, are sensitive to insured exposure locations and elevations. Appropriate methods must be used in converting street addresses to geocode locations (latitude-longitude). The methodology to determine the elevation of the insured exposure should be scientifically appropriate and verifiable.

Disclosures:

Professional Team:

2. Provide the granularity of the geographical grid modeled for flood damage. Explain the reason for the ~~sizing~~ spatial distribution of the grid locations and discuss if there is any ~~size~~ variation for populated versus unpopulated areas.
4. Describe the data, methods, and process used in the flood model to convert among street addresses and geocode locations (latitude-longitude and elevation).

[Discuss with the Modelers if they can get elevation with latitude and longitude. If so, do you use it? If not, why not?]

5. List and provide a brief description of each ~~flood model~~ database used in the flood model for determining location and corresponding elevation.
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RMS:

1. Describe the method for determining the insured exposure locations ~~and elevations~~.

6. Describe the process for updating flood model location ~~and corresponding elevation databases~~.

Audit

Professional Team:

1. Provide geographic displays for all geographic grids or non-grid formats for display of the spatial distribution and geographic characteristics of insured exposures. The treatment of any size variations for populated versus unpopulated areas will be reviewed.

COMMENT: To account for calculation of flood at individual exposure level.

RMS:

5. Flood model location ~~and elevation~~ databases will be reviewed.

GF-4, Independence of Flood Model Components

Purpose

Professional Team:

This ~~flood~~-standard requires that each of the primary components of the flood model be individually sound and operate independently. For example, the flood model shall not allow adjustments to the vulnerability components to compensate for apparent deficiencies in other components (e.g., compensation which could inflate damage). In addition to each component of the flood model meeting its respective standards, the interrelationship of the flood model components as a whole must be reasonable, logical, and scientifically justified.

Audit

Professional Team:

1. Demonstrate that the flood model components adequately portray flood phenomena and effects (damage, flood loss costs, and flood probable maximum loss levels). Attention will be paid to an assessment of (1) the theoretical soundness of each component, ~~and~~ (2) the basis of ~~each component's~~ the integration of each component into the model, and (3) consistency between the results of one component and another. For example, a flood model would not meet this standard if an artificial calibration adjustment had been made to improve the match of historical and flood model results for a specific flood event.

COMMENT: You expect the surge model to rely on winds (in part) and the inland flood model to rely on rain (in part). If something like this is missing, the integration of components would be considered faulty.

GF-5, Editorial Compliance

Disclosures

RMS:

2. Describe the process used by the signatories on Forms GF-1 through GF-~~6~~7 (Flood Standards Expert Certification forms) to ensure that the information contained under each set of flood standards is accurate and complete.
3. Provide a completed Form GF-~~7~~8, Editorial Review Expert Certification. Provide a link to the location of the form [insert hyperlink here].

Audit

RMS:

3. Demonstrate that the submission has been reviewed by the signatories on Forms GF-1 through GF-~~6~~7 (Flood Standards Expert Certification forms) for accuracy and completeness.
6. Form GF-~~7~~8 (Editorial Review Expert Certification) will be reviewed.