Lessons Learned from NOAA Atlas 14

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Topics

- NOAA Atlas 14 Accomplishments
  - Status
  - Lessons Learned
- HMR Status
- What Needs To Be Done?
NOAA Atlas 14: Precipitation Frequency Atlas of the United States

- Produced by NWS on behalf of Federal Government
- NA14 is most recent document
  - supersedes various publications developed since late 1940s
- Defacto national design standard
- Reimbursable funding
- Begun in 2000 (in our 15th year)
- Published as volumes by project area
  - as funds become available
Lessons Learned 1

• Funding is the controlling factor
  - *Piecemeal funding > piecemeal project*
  - *OK for NA14* (Oh really?!?!?!)  
    - “Same” science applied area by area
    - No guarantee of project completion
  - *Not OK for PMP*
    - There is science to develop to be applied generally
    - Data to be gathered and analyzed to support the science
    - We don’t know what “areas” are
Lessons Learned 2

- Assembling funds from many sources is tricky
  - **Difficult to identify a specific, separable work package for each funding source**
  - **Need MOUs that provide support to a single project**
Lessons Learned 3

- **Project Management**
  - *Need a critical mass of management expertise*
  - *Dedicated to the role in the long term*
  - *Proper grasp of users:*
    - Community
    - Practice
    - Needs
  - *Proper grasp of all aspects of the project*
Lessons Learned 4

- **Technical Capability**
  - *Need a critical mass of technical expertise*
    - Hydrology
    - Meteorology
    - Statistics
    - Software development
    - Configuration management
    - Quality control
  - *Dedicated to the role in the long term of each project phase*
  - *Proper grasp of users:*
    - Community
    - Practice
    - Needs
### HMR Status

#### Existing studies are old
- Some predate understandings of meso-scale meteorology

#### Data is several decades old or older

<table>
<thead>
<tr>
<th>Document link</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrometeorological Report No. 39</td>
<td>Probable Maximum Precipitation in the Hawaiian Islands</td>
<td>1963</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 41</td>
<td>Probable Maximum and TVA Precipitation over the Tennessee River Basin above Chattanooga</td>
<td>1965</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 46</td>
<td>Probable Maximum Precipitation, Meikong River Basin</td>
<td>1970</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 48</td>
<td>Probable Maximum Precipitation and Snowmelt Criteria For Red River of the North Above Pembina, and Souris River Above Minot, North Dakota</td>
<td>1973</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 51</td>
<td>Probable Maximum Precipitation Estimates, United States East of the 105th Meridian Digitized maps</td>
<td>1978</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 52</td>
<td>Application of Probable Maximum Precipitation Estimates - United States East of the 105th Meridian</td>
<td>1982</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 53</td>
<td>Seasonal Variation of 10-Square-Mile Probable Maximum Precipitation Estimates, United States East of the 105th Meridian</td>
<td>1980</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 54</td>
<td>Probable Maximum Precipitation and Snowmelt Criteria for Southeast Alaska</td>
<td>1983</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 55A</td>
<td>Probable Maximum Precipitation Estimates - United States Between the Continental Divide and the 103rd Meridian</td>
<td>1988</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 56</td>
<td>Probable Maximum and TVA Precipitation Estimates With Areal Distribution for Tennessee River Drainages Less Than 3,000 M$^2$ in Area</td>
<td>1986</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 57</td>
<td>Probable Maximum Precipitation - Pacific Northwest States, Columbia River (including portions of Canada), Snake River and Pacific Coastal Drainages</td>
<td>1994</td>
</tr>
<tr>
<td>Hydrometeorological Report No. 59</td>
<td>Probable Maximum Precipitation for California HMR58 and HMR59 shapefiles (2.9 MB)</td>
<td>1999</td>
</tr>
<tr>
<td>NOAA Technical Memorandum NWS HYDRO 39</td>
<td>Probable Maximum Precipitation for the Upper Deerfield River Drainage Massachusetts/Vermont</td>
<td>1984</td>
</tr>
<tr>
<td>NOAA Technical Memorandum NWS HYDRO 41</td>
<td>Probable Maximum Precipitation Estimates for the Drainage Above Dewey Dam, Johns Creek, Kentucky</td>
<td>1985</td>
</tr>
<tr>
<td>Technical Paper No. 47</td>
<td>Probable Maximum Precipitation and Rainfall-Frequency Data for Alaska</td>
<td>1963</td>
</tr>
</tbody>
</table>
What Needs To Be Done?

- Update PMP estimation guidance
  - New form of guidance?
    - Automated procedures?
  - New publication/delivery mechanism?
    - Web based services?

- Provide AEPs between NA14 & PMP
  - nature of product(s)?
  - publication/delivery mechanism(s)
Approach

- Socialization and Resourcing
- Major Project Elements
- Governance
- Funding
- Project Plans
Socialization and Resourcing

- Obtain SOH and ACWI approval
  - Includes buy-in from resource sources

- Must also obtain buy-in directly from each agency
  - Through agency approval & resourcing mechanisms

- Support from non-Federal stake-holders
Major Project Elements 1

• Update science
  – Literature review to define research program
  – Grants and in-house research
    • Takes time; ~2-4 years
  – Consolidate research
  – Synthesize the new approach(es)

• Add to and reanalyze historical storms
  – Probably with new science

• Modernize Severe Storms Catalog
  – Availability
  – Usability
  – Integrity
Major Project Elements 2

- Define new products
- Apply new methodology
  - Focus on producing new products!!
    - transition from research to production!!
- Define new publication/delivery mechanism(s)
  - Build and test mechanisms
- Publish new products
- Training
Governance

• Must obtain community acceptance
  – What is the “community”
  – Approach
  – Results
  – Formal public review and comment

• Project plans and accountability
  – What is the “community”?
Funding

• Funding is fundamental
  – Don’t proceed without prospect of funding success
  – Second chances are rare

• Need long term commitment
  – Funding and governance

• How are costs shared?
Project Plan

• Who does what work?
  • Relationship between separate agency efforts
    – current and planned

• Project Management
  – Integration, coordination, accountability
  – Needs strong management
    • Avoid diffusion of responsibility
  – Community acceptance
    • Requires integrity of process and results
    – Better to have single Project Manager

• Staffing