Developing Products with Partners

Hydro-Climatology Products

Integrated Water Resources Science & Service
Community Hydrologic Prediction System
Water Resources Outlook
Precipitation Frequency Estimates
Customer Satisfaction Survey… as an example & 3 thoughts
National Weather Service
Hydrologic Services Program

Customer Satisfaction Results

October 23, 2008
Customer Satisfaction Survey

Survey Focus:
Advanced Hydrologic Prediction Service
Web Pages

Used professional survey group…

Conducted three surveys…

Conducted every 2 years…

Obtained feedback…

Measured improvements/problems … responded
Hydrology Receives High Marks Again

Similar to other NWS scores; above ACSI too

- ACSI (Overall) 2008: 75.1
- Federal Government 2007: 67.8
- Event Driven - Hurricane Rita 2006: 86
- General Public 2006: 84
- Hydrology 2008: 80
- Hydrology 2006: 78
- Hydrology 2004: 77
- Emergency Managers 2006: 80
- Aviation 2007: 79
- Marine & Tropical 2006: 78
- Media 2006: 76
- Fire Weather 2006: 76
- Climate 2006: 74
Score for the usefulness of providing Flood Warnings and Watches, River Forecasts and other Water Information on your PDA is 65
Means of Receiving Hydrologic Information

6. By what means do you receive National Weather Service hydrologic information? (select all that apply)

<table>
<thead>
<tr>
<th>Source</th>
<th>2008</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWS Web pages</td>
<td>91%</td>
<td>95%</td>
</tr>
<tr>
<td>NOAA Weather Radio</td>
<td>45%</td>
<td>42%</td>
</tr>
<tr>
<td>Local or cable TV</td>
<td>41%</td>
<td>39%</td>
</tr>
<tr>
<td>Non-NWS Web pages</td>
<td>23%</td>
<td>22%</td>
</tr>
<tr>
<td>Commercial Radio</td>
<td>19%</td>
<td>18%</td>
</tr>
<tr>
<td>Newspaper</td>
<td>14%</td>
<td>15%</td>
</tr>
<tr>
<td>Phone</td>
<td>11%</td>
<td>13%</td>
</tr>
<tr>
<td>Mobile devices/PDA</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Emergency Managers Weather Information Network (EMWIN)</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>Private Vendor</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>NOAA Weather Wire</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Satellite radio</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Family of Services (FOS)</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
<td>9%</td>
</tr>
</tbody>
</table>

2008 2006
Part III: Water Resources Services

Snow Depth Map

Average: 89
90: Visual Appeal
90: Ease of Understanding
90: Tells me what I need to know
84: Usefulness of snow depth map in decision making process

National Analysis of the Amount of Water Contained in Snow

Average: 87
89: Visual Appeal
89: Ease of Understanding
88: Tells me what I need to know
83: Usefulness of estimates of amount of water contained in snow

Soil Moisture Map

Average: 86
88: Visual Appeal
88: Ease of Understanding
88: Tells me what I need to know
80: Usefulness of soil moisture in decision making
### Soil Depth where Soil Moisture is Important*

<table>
<thead>
<tr>
<th>Soil Depth</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface and near-surface</td>
<td>73%</td>
</tr>
<tr>
<td>Sub-surface, including typical rooting zone depths (e.g., 20-50 cm to 100-150 cm)</td>
<td>65%</td>
</tr>
<tr>
<td>Deeper sub-surface, down to 2-3 meters</td>
<td>29%</td>
</tr>
</tbody>
</table>

*Select all that apply

57% of respondents say soil moisture at multiple discrete levels is of more value to them; 43% feel that a single value describing bulk soil moisture is more valuable.
Part III: Water Resources Services

Water Manager Questions

Water Supply Volume Inflow Forecast Map

Average: 86
88: Visual Appeal
88: Ease of Understanding
86: Tells me what I need to know
81: Usefulness of water supply volume inflow forecast map
89: Usefulness of water supply volume inflow forecast map for the entire United States

40% of respondents continued on to the water manager questions

Water Supply Volume Inflow Forecast Progression

Average: 87
88: Visual Appeal
86: Ease of Understanding
90: Tells me what I need to know
82: Usefulness of water supply volume inflow forecast uncertainty
Part III: Water Resources Services

Water Manager Questions

Climate Sensitivity Study

Average: 76
78: Visual Appeal
76: Ease of Understanding
79: Tells me what I need to know
72: Usefulness of climate sensitivity studies

Monthly Ensemble Volume Forecast

Average: 83
85: Visual Appeal
83: Ease of Understanding
86: Tells me what I need to know
79: Usefulness of monthly ensemble volume forecasts
Summary

Professional Survey that is periodically performed can be one way to measure Customer satisfaction.

Results were used to help guide development and improvements.
Red River North @ Fargo, ND

Record 40.84 last year
Thought 1

Model Validation & Forecast Verification

Users always ask...how Good are the forecasts?
Thought 2

Probabilistic Forecasts

Challenging for Everyone

Some users still want the a single-deterministic value forecast
Thought 3

User Expectations of skill/accuracy ≠ Science Capabilities