SimSuite Informational Presentation

SimSuite Program Overview
(Chad Markin)

MRFTF and the Iowa Floodplain Analysis Decision Support Tool
(Randy Behm)

State Silver Jackets Team utilization of SimSuite
(Brian Rast)
About SimSuite?

**What?** SimSuite is a web-based geospatial application/platform comprised of data, tools, events, and functions specific to the Emergency Management Communities of Practice (COP) and the associated tasks related to the life cycle of emergency/risk management.

**Why?** To enable the functional and tactical capabilities of emergency/flood risk managers/planners and enhance communications through the use of analytical and geospatial decision-support tools to make better-informed decisions before, during, and after an event.

**How?**
- Working directly/closely with the EM/FRM Communities of Practice (COP) in development of the tools/capabilities. CoPs/practitioners/user community are driving the development bus.
- Leverage existing resources/capabilities.
- Ensure flexible/adaptable development platform. Data-driven focus.
- Maintain enterprise data consistency, integrity, security and viewer commonality.
Status Update

- ~ 50 Viewers available in Simsuite.
  - 25 USACE District/Div/Planning Response Team Viewers
  - 15 Modeled Exercise Viewers
  - 8 SJ/FRM Team Viewers

- ~ 300 Layers/Services available within SimSuite.
  - Corps Project Notebook (CPN) – USACE CorpsMap
  - National Levee Database (NLD) – USACE CorpsMap
  - National Inventory of Dams (NID) – USACE CorpsMap
  - National Flood Hazard Layer (NFHL) - FEMA
  - National Hydrography Dataset (NHD) - USGS
  - National Wetlands Inventory (NWI) - USFWS
  - National Land Cover Database (NLCD) - USGS
  - National Watershed Boundary Dataset (WBD) – USDA

- ~ 50 Real-Time/Forecast Layers/Services available within SimSuite.
  - AHPS River Gauges (observed & forecasted) – NOAA/NWS
  - Active/Historic Tropical Storms – NOAA/NHC
  - Tropical Outlooks – NOAA
  - Watches & Warnings – NOAA/NWS
  - Significant Flood Outlooks – NOAA/NWS
  - Weather/Tide Buoys – NOAA/NWS/NDBC
  - Local Storm Reporting System – NWS/ISU
  - Quantitative Precipitation Forecasts (QPF) – NOAA/NWS
  - Observed Precipitation – NOAA/NWS
  - IR Satellite – NASA

Photo Courtesy of NOAA
SimSuite User-Levels

- **All Users**
  - Access All SimSuite viewers
  - Access All SimSuite Library Layers
  - Locally add their own data/services (.shp, .kml, wms, etc)
  - Execute any of the tools in SimSuite
  - Locally Customize Viewers and symbology

- **Advanced Users**
  - Create/manage/maintain their own viewers
  - Add data/services to SimSuite Layer Library
  - Edit data and services
SimSuite Apps: Hurricane Models
SimSuite Apps: Local Storm Reporting System
SimSuite Apps: Tornado Damage Impacts
SimSuite Tools: Spot Elevation/Profiles

Data Source: NED 1/3rd arc-second, Eastern United States
Data ID: NED:CONUS:NED_13E
Elevation: 957 FEET
SimSuite Layers: (near)Real-Time Reservoir Levels/% Flood Capacity/% Conservation Pool
Missouri River Flood Task Force

Eight Task Force Working Groups

► Levee Repair
► Agriculture
► Tribal Support
► Regulatory/Permitting
► Communications
► Floodplain Management
► River Management
► Hydropower
► Navigation
Missouri River Flood Task Force

Floodplain Management Work Group

Promote gathering, sharing, and disseminating of information associated with the Missouri River floodplain and to provide a platform for open dialog around the information needs of group members. Develop a flood hazard identification and mitigation toolbox of resources and information, best practices and lessons learned, and provide it to stakeholders for their use.

► Develop Mitigation Toolbox
► Identify Potential Constraints to Flood Hazard ID and Mitigation
► Develop POC Listing for Exchange of Technical Data
► Develop Flood Risk Identification Toolbox
Flood Risk Identification Toolbox

Floodplain Assessment Decision Support Tool

Richard Sims, USDA-NRCS; State Conservationist, Iowa
Gregg Hadish, USDA-NRCS; State GIS Specialist, Iowa
FADST Tool Development Acknowledgements

- Homeland Security Infrastructure Program
- US Army Corps of Engineers
- USDA Natural Resources Conservation Service (MT, ND, SD, NE, IA, KS, MO)
- USDA Risk Management Agency
- USDA National Agricultural Statistics Service
- US Fish and Wildlife Service
- USDHS Federal Emergency Management Agency
- US Geological Survey
- US Census Bureau
- Iowa Department of Natural Resources
- Iowa Department of Agriculture and Land Stewardship
- Iowa Homeland Security & Emergency Management
- Iowa Geological and Water Survey
- Kansas Department of Wildlife, Parks, and Tourism
- Montana Natural Heritage Program
- Montana State Library
- Missouri State Emergency Management Agency
- Missouri Department of Conservation
- Nebraska Emergency Management Agency
Flood Risk Identification Toolbox

Floodplain Assessment Decision Support Tool

- Provides a high-cut assessment of at-flood risk areas
- Helps in prioritizing floodplain segments for potential areas of detailed study
- Utilizes readily-available GIS map layers for analysis
- Supports Identification of:
  - critical infrastructure
  - transportation infrastructure
  - natural resources
  - population
- Data are summarized to the 12-digit hydrologic unit for comparison
Floodplain Landform Map Layer Development from Soil Survey Map Units
3-Dimensional View of Missouri River Floodplain Landform
<table>
<thead>
<tr>
<th>Data Category</th>
<th>Number of GIS Layers for Analysis</th>
<th>Primary Sources</th>
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<td>1 Agriculture</td>
<td>17</td>
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<td>2 Boundaries (ownership, political)</td>
<td>18</td>
<td>Homeland Security Infrastructure Program, DOI, Bureau of Indian Affairs</td>
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<td>3 Census 2010</td>
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<td>US Department of Census</td>
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<td>4 Chemicals</td>
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<td>6 Communications</td>
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<td>7 Conservation Easement Areas</td>
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<td>USDA-NRCS, USFWS, State DNR</td>
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<tr>
<td>8 DHS Facilities</td>
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<td>9 Education</td>
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<td>13 Floodplain Landform Features</td>
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<td>USDA-NRCS SSURGO</td>
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<td>14 Flood Damage Locations</td>
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<td>15 Flood Risk Areas</td>
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<td>16 Flood Zone</td>
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<td>FEMA FIRM</td>
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<td>17 Food Industry Infrastructure</td>
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<td>18 Government Infrastructure</td>
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<td>19 Land Cover Land Use</td>
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<td>20 Law Enforcement infrastructure</td>
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<td>21 Mail &amp; Shipping Infrastructure</td>
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<td>TOTAL</td>
<td>403</td>
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Sample Floodplain Assessment – Homeland Security Infrastructure
(Intersect data points with floodplain landform)
Sample Floodplain Assessment – Energy Infrastructure

Legend
HUC12 Landform Analysis
Energy Infrastructure - Normalized

- 0
- 2 - 9
- 11 - 20
- 23 - 36
- 50 - 65
- 94 - 100
Silver Jackets Teams and SimSuite

Brian Rast – USACE (Kansas City)
Silver Jackets Teams and SimSuite Use During Flood Events

Projected inundation map, released in June 2011, prior to record flow releases

A product of the USACE Risk Mgmt Center, Modeling Mapping and Consequence Center, June 2011
Silver Jackets Teams and SimSuite

Usefulness in Pilot Proposals, preparing risk management products

- Proposed USGS Gage (blue diamond) and levees (purple) in project vicinity.
Silver Jackets Teams and SimSuite

Usefulness in Pilot Proposals, preparing risk management products

- Disaster declarations (March 2012), reflecting the flood’s impact and multiple requests by county.
Silver Jackets Teams and SimSuite

Usefulness in Pilot Proposals, preparing risk management products

- Upper Kansas River tributaries have four USACE reservoirs, as well as Bureau of Reclamation reservoirs, that drain eastward to the confluence of the Big Blue River with the Kansas River (red circle). The inset map (bottom right) shows the limits of the region of focus (red square).
Silver Jackets Teams and SimSuite

Usefulness in Pilot Proposals, preparing risk management products

- Big Blue and Kansas River Confluence, gage locations
Silver Jackets Teams and SimSuite

Usefulness in Pilot Proposals, preparing risk management products

- Wildcat Creek, Manhattan, KS, Vicinity Map
Silver Jackets Teams and SimSuite
Potential Use in Common Ops

- FEMA and Risk MAP, Region 7, Kansas
Silver Jackets Teams and SimSuite
Potential Use in Common Ops

- Corps Project Notebook, useful for interacting with Risk MAP Discovery Phases
Thank You

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