A vision for a more resilient Iowa

The Iowa Watershed Approach

Nathan Young
Research Engineer
Nathan-young@uiowa.edu
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The Iowa Watershed Approach

[Map of Iowa showing various watersheds]
Previous Meeting

- Hydrologic Model Uses
- BMP Mapping Status Update
- Agricultural Conservation Planning Framework (ACPF) Summary
- IWA Hydrologic Sensor Network
- Survey Results
- IWA Program Timeline Review
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Precipitation (in)

May - Aug 2017

Percent Change (%)

raw data source: http://prism.oregonstate.edu/

Much below normal
Below normal
Normal
Above normal
Much above normal
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U.S. Drought Monitor

September 5, 2017
(Released Thursday, Sep. 7, 2017)
Valid 8 a.m. EDT

Drought Impact Types:
~ Delineates dominant impacts
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/
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Hydrologic Model Development Review:

West Nishnabotna
1,650 square miles

East Nishnabotna
1,150 square miles

Subbasins Delineated
Available Datasets Describing Watershed Conditions:
- Topography (LiDAR)
- Hydrography
- Landuse (2009 Hi-Res Landcover)
- Soil Properties (SSURGO)
  - Curve Number Grid
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Model Calibration – Rain Events

- Using radar rainfall estimates from past storms as input to drive hydrologic modelling
  - Stage IV Radar Rainfall Product produced by National Weather Service (NWS)
  - Available February 2002 – Present
  - Increased accuracy for rainfall location and timing

- Used by hydrologic model to convert rainfall into surface runoff and infiltration
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East Nishnabotna: Atlantic USGS Gage (2014 Validation Event)
IWA Program Timeline

Watersheds
North Raccoon
E. Nishnabotna
W. Nishnabotna

1. WMA formation
2. Hydrologic Assessment
3. Watershed Plan
4. Select Implementation Sites
5. Project Design
6. Project Construction/Implementation
7. Sensor Deployment
8. Baseline Data Collection and Analysis
9. Detailed Model Development and Scenario Analysis
10. Evaluation of Projects
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- Wind speed and direction
- Rainfall
- Soil moisture and temperature
- Shallow ground water
- Campbell Scientific CS655

Hydrologic Sensor Network

Rainfall

Campbell Scientific CS655

Wind speed and direction

Rainfall

Shallow ground water
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http://ifis.iowafloodcenter.org/ifis/en/app/
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http://iwqis.iowawis.org/app/
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Iowa Flood Center
The University of Iowa
100 C. Maxwell Stanley Hydraulics Laboratory
Iowa City, IA 52242

319-384-1729
www.iowafloodcenter.org

The University of Iowa
IIHR
Iowa Flood Center
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Miscellaneous Slides
Review: NDRC Qualifications

- Presidential Declared Major Disaster in 2011, 2012, or 2013
- Benefit to low to moderate income (LMI) areas
- Environmental and/or infrastructure most impacted and distressed and unmet recovery needs areas (MID-URN) present
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- Available Observation Datasets:
  - River Stage
  - Discharge (Limited)
  - NOAA COOP Rainfall (Hourly)
  - NWS COOP Rainfall (Daily)
  - Water Quality (Nirate + Nitrite as N)
  - Radar Rainfall (Hourly)
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