SUMMARY OF THE MEETING OF THE
ADVISORY COMMITTEE ON WATER INFORMATION'S (ACWI)
SUBCOMMITTEE ON HYDROLOGY (SOH)
12:30 pm – 3:30 pm, Eastern Daylight Savings Time
April 18, 2019

1. **Welcome and roll call**

Chair Siamak Esfandiary welcomed everyone to the meeting. The meeting began with a roll call, included as Attachment 1. Fifteen SOH members were present, which was a quorum of members.

Member organizations that were not represented at the meeting were TVA, GEC, EPA, USBR, FERC, OSMRE and NASA.

2. **Approval of the draft agenda**

The draft agenda distributed prior to the meeting was discussed and some minor modifications were made. The modified agenda is included as Attachment 2. Victor Hom motioned to approve the modified agenda and Tom Nicholson seconded the motion. There were no objections and the motion passed.

3. **Approval of the October 18, 2018 meeting summary**

Laura Chap distributed the meeting summary for the October 18 meeting via email. Victor motioned to accept the minutes with the minor edits that he submitted. Tom seconded the motion. There were no objections and the motion passed.

4. **Status of action items from the October 18 meeting**

Laura Chap reported the results of the voting on approving the low flow work group proposal and the ESEWG extreme rainfall product needs proposal. Sixteen of the member organizations voted on each proposal; each proposal had fifteen "yes" votes and one "no" vote. The results of the email vote are included as Attachment 3.

A discussion of the listserve issues also took place at this time. The USGS's previous provider for list serves, Listbox, has gone out of business. The new provider is SendinBlue. Issues are still being worked out in importing the new lists and creating accounts for those that need them. Laura said that once the issues are worked out, all correspondence will be sent both through regular email and the listserve for a period of three months, so that members and guests can ensure that the listserve emails are not trapped in spam folders.

Sue Lowry also gave the update on the Streamflow Information Collaborative at this time, due to scheduling conflicts later in the meeting. Her report has been included in the workgroup report section of the minutes.

5. **Feature presentation 1: Derivation and Application of Idealized Flow Conditions in River Network Simulation, Dr. Shahab Afshari, University of Massachusetts (Amherst)**

Siamak introduced Dr. Shahab Afshari, who is a postdoctoral student at the University of Massachusetts at Amherst. Shahab thanked everyone for allowing him to present today.

The first part of his presentation focused on the comparison of a new generation of low-complexity flood inundation mapping tools with a hydrodynamic model. The comparisons were made over various scenarios to highlight model responses. The inputs included a simulated streamflow time series and four different levels of terrain data: National Elevation Dataset (NED) only; NED plus bathymetry data; NED plus levee data, and NED plus bathymetry plus levee data.

The Hydrologic Engineering Center's River Analysis System two-dimensional model (HEC-RAS 2D) was used as the hydrodynamic model. This was considered the most realistic outcome for comparison.

The low-complexity models that were tested were AutoRoute and the Height above Nearest Drainage (HAND) model. One of the areas of study was presented, the Black Warrior River in Alabama. The extents of the HEC-RAS 2D model inundation versus the extents of the AutoRoute and HAND models were compared. Overall, HAND was providing better results in this case than AutoRoute.

Robert Mason asked if the analysis had considered any bridges or culverts. Shahab answered that this can only be done in HEC-RAS 2D.

Ben Pratt asked for a further explanation of AutoRoute and HAND. AutoRoute uses the Manning's equation to determine depth at a cross section. HAND approximates flooding using the height above the nearest drainage.

Victor Hom asked about the kappa statistics and fitness statistics that were shown; how much difference is there between the low complexity versus the hydrodynamic approach. Shahab answered that the blue color shown on the maps is the intersected extent. The other colors are predicted by one model but not the other model. It would be better to add physical characteristics and more information, but it's a good first cut.

The second part of the presentation was the about the at-a-station hydraulic geometry (AHG) relationship.

The purpose of this research is to determine if simplifying river bed geometries could reduce the burden of gathering bathymetric data. The project used a power law for geometry. Power functions relate mean stream channel hydraulics (water depth, top width, flow velocity and flow area) to discharge. These are the AHG parameters. Relationships between these parameters at bankfull stage were presented in a series of graphs. Slope, sinuosity and overbank slope were also tabulated.

Siamak said that there are two reasons he asked Dr. Afshari to do this presentation. One is that there were questions from last time on what kind of research is being done at the National Water Center and the other is that there are some easy ways to estimate the cross section at streams if you have limited data. He thanked Shahab for the presentation.

6. **Feature presentation 2: STIWG, LySanias Broyles, USACE**

LySanias chairs the STIWG workgroup, which reports to the SOH under ACWI as well as the Committee for Environmental Service, Operations and Research Needs (C/ESORN) under the Office of the Federal Coordinator on Meteorology.

STIWG is a user group for the Geostationary Environmental Operational Satellite (GOES) Data Collection System (DCS) and advises the National Environmental Satellite, Data, and Information Service (NESDIS).

It promotes information exchange, sharing of data, and research and development results. It undertakes projects that benefit the GOES DCS community.

STIWG agencies include the USFS, NOAA, USACE, BLM and others as well as international users. STIWG's 2018 meetings included the Spring Technical Working Group (TWG)/STIWG meeting in Miami, Florida. The agenda included DCS training, radio frequency interference, the launches of GOES 16 and 17, and the future of DCS. The Fall Technical Review/STIWG teleconference was held in December 2018.

LySanias showed an image of the GOES DCS Communication footprint. GOES-West imagery is detailed enough that users can zoom in for wildfire information.

STIWG working groups include DCS preservation and OpenDCS Standardization. A new group to be proposed is random channel coordination. OpenDCS Support Agreements are interagency agreements to scope the software and jointly fund it. One challenge is radio frequency interference analysis and mitigation. DCS is allocated the 1675-1680 MHz spectrum. This portion of the spectrum is not susceptible to rain fade, very robust and private industry wants it.

NOAA is currently collecting information on the current electromagnetic environment. This is a fact-finding mission, looking into the potential threats. Some agencies have awarded separate scopes of work for site analysis, equipment modernization, recommended mitigation measures and interference monitoring. Terrestrial systems such as cell towers at full power may overcome our systems. The area of the spectrum that is proposed to be auctioned is an area needed for GOES downloads. There are spectrum sharing guidelines that restrict what can be received. Some things that may be impacted are navigation, flood damage reduction, coastal navigation, drinking water, and pre- and post-fire monitoring.

Other issues involve two-way Data Collection Platform (DCP) communication; these are next-generation DCP issues. A design analysis showed that 2000-plus units were impacted. On April 6, 2019 there was an issue, similar to a Y2K bug issue, that coincided with record flood events. They are also looking at High Rate Information Transfer (HRIT), which compresses data.

Meetings have included the SOH meetings and the Satellite Communications (SATCOM) forum. The objectives are to inform, develop white papers, and DCS Alternate Data Dissemination System (DADDS) modernization.

Mark Landers asked if the USGS is represented on STWIG. LySanias said that Dan Schwitalla as well as several others participate.

Robert Mason said that this is a very crucial system to the USGS, NWS, USACE, and others for sharing information. An analogy for this area of the spectrum is that it allows us to speak that almost to a whisper to transmit information, the problem is that someone adjacent to us is using a bullhorn. It is an important channel.

LySanias said that we can collect all the data that is being transmitted. Stream gaging alone is eight million observations per day. Some instrumentation relies on radio frequencies. The efforts to auction off parts of the spectrum are a major issue in terms of what we can't monitor, especially for weather.

Siamak asked if other agencies have direct feeds from these satellites, or if one agency distributes everything. LySanias answered that agencies can have a Direct Readout Ground Station (DRGS) or a

High Rate Information Transmission (HRIT), which is a rebroadcast. If the agency does not have a dish, then they will collect it from the internet. Then they need software that decodes the data. All agencies can collect this information.

Mark Landers said that it is important for users to understand that water level data is directly measured. Streamflow is processed data.

Siamak said that what we get from USGS is the final product. LySanias said that the GOES data is the raw data. Victor Hom agreed with Siamak and stated that there is some post-processing performed on the data, so it is important to get it from the website. This is an important pipeline for that data.

Siamak asked what is it that is being checked with this data? LySanias said that when the data is pulled in a problem with the sensor might be seen, such as intermittently showing bad values. Another example is determining the actual streamflow flow values from rating tables. That data is in the public-facing interfaces.

Siamak asked about the more advanced gages, such as those with water quality data and temperature, are these gages affected? LySanias said that GOES just collects the data and transmits it, the satellite does not store the data.

7. New Business

Siamak discussed the National Academy of Sciences urban flood study report which was recently published. He mentioned that there were also two other urban flooding reports published recently: the 2018 report from Texas A&M which presented the growing threat of urban flooding as well as the more recent urban flooding report from the University of Maryland.

Just recently, the National Academy of Sciences published their report, "Framing the Challenge of Urban Flooding in the United States." FEMA was the sponsor of this report; Congress had mandated that FEMA fund this report. It is available online for download.

Robert suggested that the SOH could ask Gerry Galloway or someone from the National Academy to give a presentation.

Tom said he brought it up as urban flooding due to severe precipitation impacts. He would love to hear David Maidment make a presentation to the SOH on this topic.

Siamak said that this is a consensus report. Those four cities were picked before Hurricane Harvey. These reports are trying to highlight a problem that we need to pay attention to, which is urban flooding.

Robert said he would encourage the SOH to add a presentation from one of the authors of these reports to the upcoming agenda.

8. Workgroup reports

HFAWG

Will Thomas provided the report. The group published Bulletin 17C. They have been spreading the word about 17C. Robert Mason, Julie Kiang and Will Thomas had planned to conduct a workshop at the Transportation Research Board (TRB) meeting in January, 2019. It was during the partial government

shutdown, so Will taught the workshop alone. Julie and Robert wrote a short article for the American Institute of Hydrology that will appear in their newsletter. The group is considering a Journal of Hydrology article on the history of Bulletin 17C which would be written by John England and other Bulletin 17C co-authors.

Will would like HFAWG to continue and to address the low flow guidance. New members of the HFAWG will be identified to undertake this task. Since the SOH has approved the establishment of the low flow work group, this needs to be sent to ACWI when it is reconstituted.

Dan Sullivan said that until ACWI is reconvened, the SOH cannot start work on the low flow guidance. He does not have any estimate on when that will happen. Dan mentioned that no new work unless approved.

Robert said that the flood frequency evaluations report will be included in the USGS business report. Since Bulletin 17C is out, John and Julie have completed that paper. The paper was released as a USGS Open -File Report 2017-1064 a few months ago. This report was published out of sequence, as it should have been published before Bulletin 17C.

Victor asked Dan that since the notes from ACWI notes show that they saw gaps in Bulletin 17C, and we should continue working on them, does this count as approval to proceed? Dan will bring it up at the meeting about ACWI he has next.

Will noted that all those items are fairly big efforts. They include climate change and regulated flows.

Dan will seek clarification and he will share it.

Will is assuming that there will be an ACWI. Martin indicated he thought Will's assumption may be too positive. Dan said he does not have any indication that there will not be an ACWI. The SOH may continue work that has begun but should not start any new work or subcommittees.

Martin asked whether the Climate Change Subcommittee would survive? Dan said that has not been discussed.

Siamak asked if ACWI does not exist, can we exist? Dan answered that as long as we are in the process of recruiting new members for ACWI, continuing current work is fine. Ongoing work leading to new recommendations or guidance is fine as well, but it can't be published until ACWI approves.

Ben Pratt asked if we are moving ahead with low flow proposal. Dan will get more clarification on this issue.

HMWG

Claudia Hoeft provided the report. The work group is collaborating with the Subcommittee on Sedimentation on the SEDHYD conference, June 24-28 in Reno, Nevada. The organizing committee has been very busy. Chandra Pathak is the technical chair. There will be 275 papers, 28 posters, and seven computer model demonstrations. There will be a session on professional development, which will be a joint presentation of the American Institute of Hydrology and the American Society of Civil Engineers (ASCE). There will also be ethics sessions. Final papers for the conference are due back on Friday, April 25. Early registration is open through the link at www.sedhyd.org/2019. Registrations received prior to May 20 get the early registration rate.

There will be five field trips and fifteen workshops. There are three keynote speakers: George Annandale (speaking on sedimentation), Dr. Lauren Hay of the USGS, and Kristina Swallow (the outgoing ASCE president).

The HMWG report is included as Attachment 4.

ESEWG

Tom provided the report. The next meeting will be on May 7, 2019 at the NWS/NOAA offices in Silver Spring, Maryland. The group has not met recently due to the partial government shutdown. Victor will update everyone on the status of the **Extreme Rainfall Product Needs Proposal**. Mark Perry from the Colorado Division of Water Resources, Dam Safety, will talk about presentation at the recent ASDSO West Regional workshop on extreme precipitation. Jason Giovannettone from Dewberry will discuss flood mapping. Will Thomas has been invited to participate.

Victor said that updates to NOAA Atlas 14 are moving forward. There will be some public releases shortly.

Siamak asked how many States don't have data right now? Victor said that ***NOAA Atlas 14*** needs more sustainable resources to complete the precipitation-frequency atlas. Tom said that Washington, Oregon, Idaho, Montana and Wyoming do not have precipitation-frequency data. The data will be in the future Volume 12 of NOAA Atlas 14.

Siamak asked if the data exists and the need is just to process and analyze it. Tom said that we would have to ask Sanja Perica, HDSC/NWS/NOAA who would be able to answer better.

Chandra said that they have had some discussions with Mark Glaudemans, Sanja's supervisor, on these issues. The data, the data analysis and the reporting are all issues. Mark reported later that decades of new data must be collected and quality controlled for the Northwest states, and a lengthy analysis must be performed on the data. The work is suspended until a funding stream can be established for this reimbursable managed activity. A work plan is posted as an FHWA solicitation at the following: https://www.pooledfund.org/Details/Solicitation/1490.

Will said that the Atlas includes Alaska, Puerto Rico and Hawaii. Other States rely on NOAA Atlas 2. Techniques have changed over time, and there are new techniques.

Tom said that new information has to be recaptured. The analysis should be done based on watershed boundaries and not State boundaries.

STIWG

LySanias provided the report. He covered most of the STIWG updates in his presentation. They have their annual meeting next week at the USACE Risk Management Center in Denver. It is possible to call in to attend remotely, he will provide WebEx information.

Streamflow information collaborative

Sue Lowry gave the update. Sue was recently selected to the be the non-federal chair. Sandy Eberts is the federal chair. They hold webinars on the second Tuesday of each month.

Jim Kreft of the USGS presented in February on the modernization of the NWIS website. In March, Dwayne Young from EPA spoke on standardizing sensor data.

They are taking the next step on making recommendations to the SOH, so any advice to the committee is appreciated. Please join them on the monthly calls.

9. Business Reports

In the interest of time, business reports from member agencies are submitted in writing and not read at the meeting. Business reports from the NRC, NOAA, USDA-NRCS and USGS are included as Attachments 5 – 8.

10. Review action items for next meeting

Will asked if it is correct that the low flow work group is approved by the SOH but is waiting on ACWI. Siamak said yes.

Tom asked if Laura and Fatimah could distribute a list of the multiple upcoming meetings, so that all members could have them in one place.

The next meeting will be July 18, location to be determined.

Martin motioned to adjourn the meeting. Will seconded the motion. There were no objections and the meeting was adjourned.

Attachment 1. Roll call and represented member organizations

Roll Call

Ben Pratt*	NHWC	On phone
Brian Beucler*	FHWA	On phone
Chandra Pathak*	USACE	On phone
Claudia Hoeft*	USDA-NRCS	On phone
Wade Crow*	USDA-ARS	On phone
Martin Becker*	BECKER	On phone
Robert Boyd*	BLM	On phone
Robert Mason*	USGS	On phone
Siamak Esfandiary*	FEMA	On phone
Steven Yochum*	USFS	On phone
Terry Davies*	NSF	On phone
Tom Nicholson*	NRC	On phone
Victor Hom*	NWS	On phone
Will Thomas*	ASFPM	On phone
Mathini Sreetharan*	Dewberry	On phone
Mark Landers	USGS	On phone
Jack Eggleston	USGS	On phone
Dan Sullivan	USGS	On phone
LySanias Broyles	USACE	On phone
Meredith Carr	NRC	On phone
Douglas Hultstrand	Applied Weather Associates	On phone
Mark Perry	ASDSO	On phone
Joseph Kanney	NRC	On phone
Sue Lowry	Interstate Council on Water Policy	On phone
Brian Koper	FEMA	On phone
Laura Chap	Atkins/STARR II	On phone

*SOH member or alternate

Member Organizations Present

ASFPM	Yes
USBR	No
BECKER	Yes
FEMA	Yes
FERC	No
NSF	Yes
FHWA	Yes
GEC	No
NASA	No
NHWC	Yes
USDA - NRCS	Yes
NWS	Yes
USACE	Yes

USDA - ARS	Yes
USDA - USFS	Yes
DOI - BLM	Yes
DOI - OSMRE	No
DOI - USGS	Yes
EPA	No
NRC	Yes
TVA	No
Dewberry	Yes

Attachment 2 – Meeting Agenda

MEETING OF THE
ADVISORY COMMITTEE ON WATER INFORMATION'S (ACWI)
SUBCOMMITTEE ON HYDROLOGY (SOH)
12:30 p.m. – 3:30 pm, Eastern Time
Thursday, April 18, 2019

Location: **In-person meeting: Atkins, 3901 Calverton Blvd Ste 400, Calverton, MD 20705**

Problems? Fatimah Salhan, Office: (240) 264-8911; Siamak Esfandiary, cell: (202) 701-3606

Meeting Instructions and Resources:

In the interest of time, we will be using the doodle poll to do our roll-call and provide a guest list for security. Please register before COB on April 17 at

https://doodle.com/poll/vc2pcw5ddi87hzqe

Call-in and meeting link:

JOIN WEBEX MEETING
https://doilearn2.webex.com/doilearn2/j.php?MTID=m6ae2e1dacb05838e11cbd06e85613331
Meeting number (access code): 903 274 273 Meeting password: SOH_Apr18

JOIN BY PHONE
+1-415-527-5035 US Toll

Can't join the meeting?
https://collaborationhelp.cisco.com/article/WBX000029055

Agenda

1. **Welcome (5 mins)** — **Siamak Esfandiary**

2. **Roll Call (5 mins)** — **Laura Chap**
   - SOH member organizations
   - Other attendees and guests (via doodle poll)

3. **Approval of the Draft Agenda** — **Siamak Esfandiary**

4. **Approval of the October 18, 2018 Meeting Summary (5 mins)** — **Laura Chap**

5. **Status of Action Items from October 18, 2018 Meeting (10 mins)** — **Laura Chap**
   - Email votes on low flow and ESEWG proposals
   - List serve issues
   - Streamflow Information Collaborative work group report

6. **Featured presentation (20 min): Derivation and Application of Idealized Flow Conditions in River Network Simulation**

   Dr. Shahab Afshari, City University of New York

7. **STIWG presentation (20 min)**

   LySanias Broyles

8. **Break (10 min)**

9. **New Business/Announcements (15 mins)** **Siamak Esfandiary**
   - National Academies of Science urban flooding report

10. **SOH Workgroups *(*30 mins)** **Siamak Esfandiary**
    - *HFAWG* *Will Thomas*
    - *ESEWG* *Tom Nicholson*
    - *STIWG* *LySanias Broyles*
    - *HMWG* *Claudia Hoeft*

11. **Review Actions and Plans for next SOH meeting (*5 mins)*** **Siamak Esfandiary**

12. **Next Meeting** **All**

11. **Meeting Adjourn (*Around 3:30 pm*)**

Attachment 3 – Record of email votes on the low flow work group and the ESEWG proposal

Question#1:
For the SOH to approve the creation of a low flow work group

Question#2:
For the SOH to approve the ESEWG proposal

Representative	Question#1:	Question#2:
Ben Pratt	yes	yes
Brian Beucler	yes	yes
Claudia Hoeft	yes	yes
Curtis Jawdy	yes	yes
Dave Goodrich	yes	yes
Don Woodward	yes	yes
Ian Ferguson	yes	yes
Martin Becker	no	no
Robert Mason	yes	yes
Siamak Esfandiary	yes	yes
Steven Yochum	yes	yes
Terry Davies	yes	yes
Thomas Nicholson	yes	yes
Victor Hom	yes	yes
Will Thomas	yes	yes
Mathini Sreetharan	yes	yes

Attachment 4 – HMWG Report

Hydrologic Modeling Work Group Report

SEDHYD 2019 is scheduled for June 24 – 29, 2019 in Reno, Nevada at the Peppermill Hotel.

Some important dates:

- Friday, April 25, 2019 – Final papers for the proceedings are due from Authors
- Monday, May 20, 2019 – Early registration ends
- June 24-29, 2010 - SEDHYD 2019

Among the conference offerings this year:

- Approx. 275 technical paper oral presentations
- Approx. 28 poster presentations and 7 computer model demonstrations
- 5 Field Trips and 15 Short Courses
- Sessions on International Opportunities
- Session on Professional Development (in conjunction with the American Institute of Hydrology (AIH) and the American Society of Civil Engineers (ASCE))
- Sessions on Ethics

Keynote Speakers:

- Dr. George Annandale, President, George W. Annandale, Inc., Peoria, AZ
- Dr. Lauren Hay, Research Hydrologists, USGS, Lakewood, CO
- Kristina L. Swallow, 2018 President, ASCE

Visit www.sedhyd.org/2019/ for full information!

Attachment 5 – NRC Business Report

U.S. Nuclear Regulatory Commission Announcements

1. The U.S. Nuclear Regulatory Commission's Office of Nuclear Regulatory Research (NRC/RES) will host the 4th Annual NRC Probabilistic Flood Hazard Assessment (PFHA) Research Workshop on April 30 - May 2, 2019 at NRC headquarters in Rockville, Maryland. Staff and contractors from NRC, Electric Power Research Institute (EPRI), federal agencies, industry, and other organizations involved in flood hazard assessment, and flood risk assessment, and flood protection research will provide information on recent results, current activities, and perspectives on future research directions. Attached is the PFHA workshop agenda.

2. The U.S. Nuclear Regulatory Commission and the U.S. Geological Survey are cooperating on a project to develop a framework for technical review of paleoflood study data collection, reporting, and incorporation into probabilistic flood hazard assessments.

   As part of this project we are conducting a public workshop, at the U.S. Nuclear Regulatory Commission, Rockville, Maryland, May 29–30, 2019. The purpose of the workshop is to collect perspectives and recommendations from a broad range of subject matter experts and stakeholders. A USGS Techniques and Methods report will ultimately document the framework for technical review. We anticipate this framework will not only be useful to U.S. Nuclear Regulatory Commission probabilistic flood-hazard assessments and U.S. Geological Survey flood-frequency analyses but will also be useful to other agencies and entities that do such assessments. It will also inform those that collect and publish paleoflood data as to what reporting standards and metadata would make their data most useful to others.

   There is no cost for the paleoflood workshop; however, preregistration is required. Please Dr. Karen Ryberg of the USGS, kryberg@usgs.gov, for a registration form. Registration closes April 24th, 2019.

Attachment 6 – NOAA Business Report

SOH Member Business Reports (April 2019)
NOAA NWS

PRESTO - Monthly Climate Summary for the Baltimore MD/Washington DC area

PRESTO is a monthly NOAA NWS publication, providing **PRE**cipitation **S**ummary and **T**emperature **O**bservations for the greater Washington DC area. For March 2019, the Baltimore MD/Washington DC area observed above normal precipitation at the three major airports: Reagan National (DCA) 4.00" or +0.62" above March normals; Baltimore (BWI) 4.14" (+0.24") and Dulles (IAD) 4.55" (+1.17"). This was the 2nd wettest March at Dullles in the last 10 years. Weather observations have been routinely collected at Dulles since the 1960s and the other two sites since the 1870s. For additional climate history at these three sites, please visit the NWS Weather Forecast Office Baltimore/Washington (LWX) webpage.

NOAA Spring 2019 Flood Outlook

NOAA held a National Spring Outlook press briefing on Thursday, March 21, which projected historic, widespread flooding to continue through May. A wet winter has primed much of the Great Plains for spring flooding, with major flooding likely along the Red River of the North, the Missouri, and the Mississippi Rivers. Moderate flood risk extends upstream of those rivers to their tributaries, including the lower Ohio, the Cumberland, and Tennessee Rivers. In addition to wet antecedent conditions, there is elevated risk of well above average precipitation. Please see graphic of the latest Significant River Flood Outlook across USA and latest climate news.

Enhanced Hazardous Weather Outlook

The NWS is experimentally fielding the Enhanced Hazardous Weather Outlook (EHWO), a decision support service which aids preparedness and response efforts prior to and during hazardous weather. This new service is being tested and evaluated across 50 NWS Weather Forecast Offices (WFOs). The goal is to provide decision makers with convenient graphical access to the expected type, severity, coverage and potential impacts of hazardous weather events. The NWS would like your help by reviewing this new experimental service, visiting a few of the participating WFOs listed in the information, and providing your feedback.

GOES 17 Now Operational as GOES-West

Launched on March 1, 2018, GOES 17 joins GOES 16 (GOES-East), the first of NOAA's new fleet of advanced weather satellites (GOES R-Series), to deliver high-resolution visible and infrared imagery and lightning observations. NOAA's GOES-17, now operational as GOES West, is providing faster, more accurate, and more detailed observations for detecting and monitoring Pacific storm systems, severe storms, fog, wildfires, and other environmental dangers affecting western United States, Alaska, and Hawaii. In February 2019, GOES-17 assisted forecasters by keeping an eye on the atmospheric river conditions affecting the U.S. Pacific Coast.

Hurricane Preparedness Week Kick-Off

This year, **Hurricane Preparedness Week Kick-Off** will start on May 5th with a weeklong campaign of hurricane safety awareness and preparedness tips. The week will also include the 2019 Hurricane Awareness tour featuring stops of the aircrafts (NOAA-P3 and USAF WC-130J) in Rhode Island, Pennsylvania, Virginia, North Carolina, and Georgia. Please help in promoting hurricane preparedness and building a more resilient weather ready nation.

Attachment 7 – USDA – NRCS Business Report

Congress, through the 2018 Farm Bill, directed USDA-NRCS to undertake a review and if necessary update of all of our conservation practice standards. These standards set minimum quality criteria that must be met during application of practices in order for it to achieve their intended purposes. NRCS assists landowners across the country with planning, design, and installation of conservation practices to help them address resource problems on their land and "put conservation on the ground."

The USDA Natural Resources Conservation Service (NRCS) posted a notice to the Federal Register on Monday, March 11, 2019 requesting review and comments from the public on improving all USDA-NRCS national conservation practice standards, including engineering design specifications, that were in effect on December 19, 2018. NRCS will evaluate opportunities to increase flexibility in the standards to ensure equivalent natural resource benefits. Comments are due by April 25, 2019.

Please see the attached for more information, and visit the Federal eRulemaking Portal website at: (http://www.regulations.gov) and search for docket ID number NRCS-2019-0003 for full instructions regarding online instructions for submitting comments electronically.

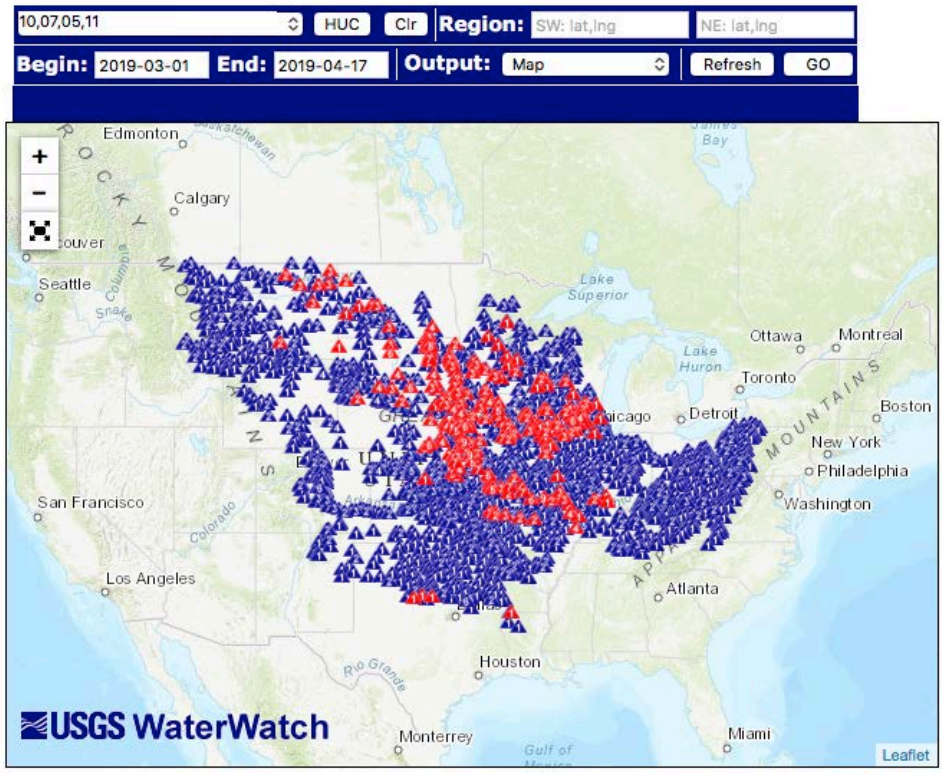
Electronic copies of the national conservation practice standards are available at http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/technical/cp/ncps/?cid=nrcs143_026849.

Attachment 8 – USGS Business Report

SOH Member Business Reports (April 2019)

U.S. Geological Survey

USGS Streamgage Network Operations -Recent flooding in the Midwest and along the Mississippi River mainstem and at other locations across the country have been the focus of many USGS Water Science Center hydrographers. The USGS made thousands of flood-flow measurements (see figure) and hundreds of rating updates and extension needed by the National Weather Service for its river forecasts and U.S. Army Corps of Engineers for its operation of flood-control reservoirs.



Explanation

- Number of direct measurements of disharge made during time period
- Number of direct measurements of flood discharge (streamgage is above flood stage) made during time period

Next Generation Water Observing System (NextGen) -The USGS is seeking to develop and pilot a more complete and integrated water observational system. When fully implemented, the USGS NextGen integrated water observing system will provide quantitative information on streamflow, evapotranspiration, snowpack, soil moisture, a broad suite of water quality constituents (nutrients, salinity, turbidity, and wastewater indicators), connections between groundwater and surface water, and water use. It will be directly coupled with the National Water Model and other advanced modeling tools to provide state-of-the-art flood and drought forecasts, drive emergency- and water-management decision support systems, and to address difficult questions and the amount, management, and quality of water resources.

The USGS has chosen the Delaware River Basin as the location of the first pilot. The Delaware River NextGen will add 17 new streamgages including additional monitoring of temperature and conductivity to help in the management of fisheries and downstream, tidal saltwater intrusion into the Delaware which affects delivery of drinking water to cities such as Philadelphia. Additional pilots are planned. A webpage is available for more information at URL: https://www.usgs.gov/mission-areas/water-resources/science/next-generation-water-observing-system-delaware-river-basin?qt-science_center_objects=0#qt-science_center_objects. Lead contacts include Mike Woodside (email: mdwoodsi@usgs.gov.)

Evaluation of approaches to flood-frequency analysis - This report considered the statistical performance of possible revisions to Bulletin 17B procedures. Of particular interest are procedures designed to accommodate more general forms of flood information. The concern is how the proposed procedures would affect the precision, accuracy and robustness of flood-frequency estimates. The investigations reported within the report focus on techniques for the following: incorporating information related to historical flooding that occurred outside the period of systematic streamgaging; and identification of potentially influential low floods (PILFs). The proposed changes, which mostly involve generalizing Bulletin 17B's method-of-moments procedures by using the Expected Moments Algorithm (EMA), are relatively modest, at least in the sense that they would not affect the main features of Bulletin 17B. The proposed methods include the following: continued use of the log-Pearson Type 3 (LP3) distribution; continued use of the Method-of-Moments fitting method applied to the logarithms of annual-peak-flow data; and a generalization of the Grubbs-Beck test used in Bulletin 17B to identify low outliers. The new multiple Grubbs-Beck test is sensitive to multiple PILFs. The hydrological literature already provides extensive support for the theory behind the proposed changes. The remaining question is practical: How well do the proposed methods perform under typical and realistic conditions and, specifically, with difficult records occasionally encountered in practice? In order to answer these questions, the HFAWG commissioned the work reported in the report.

The experiments and analysis indicate that the flood quantile estimators, proposed as a revision of Bulletin 17B, do the following: perform generally as well as, and in some cases much better than, Bulletin 17B estimators in terms of the mean square error of flood quantiles estimates; allow for incorporation and efficient statistical treatment of broader classes of flood-frequency data and information, including historical information, binomial data and interval data; and generally confirm studies and the theoretical findings reported in the hydrological literature that would support use of updated estimation procedures that have been developed since Bulletin 17B was published. The report is presented at URL: https://pubs.er.usgs.gov/publication/ofr20171064.

The USGS has released a new satellite-based water mapping tool. The Dynamic Surface Water Extent (DSWE) is one of a trio of Landsat Level-3 science products released in February 2019. The goal for DSWE is to test every cloud-, shadow-, and snow-free pixel in the Landsat archive—from the early 1980s to present—for the presence or absence of surface water on the land. DSWE includes tests at the sub-pixel scale, which helps identify mixtures of vegetation, soil, and water, in addition to pixels covered entirely by

open water. An interesting and highly accessible interview of the USGS developer of the new approach is available at https://www.usgs.gov/center-news/new-landsat-level-3-science-product-uncovers-changes-surface-water?qt-news_science_products=1#qt-news_science_products. The product and guidance for obtaining data from it are provided at doi.org/10.5066/F7445KQK.