

**SUMMARY OF THE MEETING OF THE
ADVISORY COMMITTEE ON WATER INFORMATION'S (ACWI)
SUBCOMMITTEE ON HYDROLOGY (SOH)
12:30 p.m. – 3:30 pm, Eastern Standard Time
April 20, 2017**

1. Welcome

Chair Robert Mason called the meeting to order at 12:44 pm.

2. Words from our host

Laura Chap introduced the meeting host, Atkins North America, Inc. Atkins is a design, engineering and project management consulting firm. Most of the staff in the Calverton office work on the FEMA contract; Atkins is part of the joint venture STARR II, which is under contract to FEMA to help administer the National Flood Insurance Program through flood studies processing Letters of Map Revision (LOMRs).

3. Roll Call

The roll call of those attending in person or on the phone is included as Attachment 1.

4. Review and approval of agenda

Tom Nicholson moved to accept the agenda, Ted Engman seconded the motion. There were no objections and the agenda was adopted. The agenda is included as Attachment 2.

5. Introduction to the SOH

Due to the late start, the introduction and background on the SOH was skipped in the interest of time.

6. Feature presentation

Robert introduced Stacy Archfield, a research hydrologist with the USGS. She conducts research on flood trends.

Stacy presented "Detection and attribution of flood trends across the United States."

https://acwi.gov/hydrology/minutes/archfieldetal_soh_apr2017.pdf

She began with a review of previous work on flood trends. Hirsch, R.M. and Ryberg, K.R., 2012, Hydrological Sciences Journal looked at changes in annual peak floods across the U.S. In some locations, there are regional patterns, but there was not a consistent pattern across the U.S. The Villarini paper is another way to look at the data. Most analyses had generally focused on trends in the annual, instantaneous flood. That implies there is only one "flood" per year. In drought years, the annual flood may not have been truly a flood. These studies also ignore the possibility that the frequency increased.

As an alternative to the annual flood series the peaks-over-threshold approach was presented. The researches tried to ensure that the events were independent through a detailed algorithm. Trend analyses were performed on each one of the four flooding variables: peak, duration, volume and frequency. This analysis was applied to 345 gages over the U.S; this gage set included gages with long records, which were very complete for the last 10 years, see Archfield, S.A., R.M. Hirsch, A. Viglione, and

G. Blöschl, 2016, Fragmented patterns of flood change across the United States, *Geophysical Research Letters*, 43, doi:10.1002/2016GL070590.

To determine regional changes in floods, the U.S. was divided into 400 km grids. At any cell with more than three sites, a Kendall test for statistically significant trend was performed.

Two questions were asked. Are the number of significant regions more than would be expected by chance? Are the number of significant regions with increasing trends greater than decreasing more than would have been expected by chance?

Looking at regional changes in floods, 43% of gages showed no statistically significant change in any group. There was a frequency increase in the Pacific Northwest, New England and the Appalachian Mountain areas. All variables were increasing in the mid-Atlantic area. There was a decrease in frequency in Florida and in other parts of the Pacific Northwest.

These results are fairly consistent with research about flood change; there are some locations that are experiencing change, but no broad patterns are discernible yet. The results are consistent with the IPCC report. Bulletin 17C includes a statement on climate variability and change.

The USGS is collaborating with the FHWA in efforts towards synthesis and research on flood detection, attribution, and adjustment for change. Some final thoughts included: the only way to figure this out is to keep measuring, non-stationarity is a research question, and the problem of flood losses is based on what we do with the landscape.

There were several questions following the presentation.

Martin Becker asked about the period of record on the gages. Stacy responded that the POR was 1940-2013. He asked how many of the peaks were affected by flood control structures? She answered that these were filtered out.

Jerry Coffey noted that patterns of change in increases in magnitude appear to be coincident with the jet stream. Also, he suggested looking at discussions from the statistical community about abuse of the p-system.

Martin Becker asked if there were parameters for basin size? Stacy answered that they did not eliminate gages based on basin size, however they tried to account for it in thresholds. Stacy will provide a link for the report.

Joe Kanney asked about comparing the results to the Slater and Villarini, 2016 "Recent Trends in U.S. Flood Risk" paper; do you see significant differences or similar patterns? Stacy responded that this is another way to look at flood change. The studies show similar patterns.

Siamak noted that there is a positive trend in peak floods in the northeast U.S. A lot of these locations are in the Mississippi basin so one could conclude that the downstream Mississippi will have flooding problems. Possibly you can't find trends in local floods, but will see them downstream. Stacy answered that it makes sense that you would see effects downstream, but we are unable to observe that. We don't have gages on these larger rivers that meet the criteria of being unmanaged.

Ben Pratt asked why 1940-1969 was used as a base period? Stacy responded that it is a common base period for climate. Ben noted that the time period is interesting because it captures pre- and post-regulation.

Jerry Coffee suggested the Roger Pielke's, Tufts University paper on flood damage. Also, he noted the persistence issue of the jet stream pattern. One hypothesis is that setting up of jet stream is the cause of floods.

Jack Felbinger asked if major changes in land use were included when filtering the data set? Stacy answered yes, to extent possible. The data was used on reference and non-reference gages.

Robert noted that the presentation was very well received and thanked Stacy.

7. Approval of the January 2017 meeting summary.

Siamak motioned to approve the January meeting summary. Ted seconded the motion. There were no objections and the summary was approved.

8. Status of action items from the January meeting

a. ACWI February meeting

Siamak noted that the meeting went very well, the presentation was well received. Tom Nicholson stated that ACWI wants us to participate in a follow-up, face-to-face meeting in the fall. Ted said it was difficult to determine people's reaction via teleconferencing. Will Thomas agreed that face-to-face meetings are better. Tom noted that the ACWI members were very interested in the USACE MetVue program and database.

b. Earth observation assessment

Robert will share the USGS analysis on stream gaging at the next meeting.

c. Data gaps

Ted completed this item of requesting representation from various agencies on the data gaps working group.

d. ACWI presentation slides

Robert provided these slides to Siamak prior to the meeting (which are not on the ACWI or SOH Websites).

9. Announcements

Ben announced that the NHC 2017 Conference will take place June 4-8 in Squaw Valley (Lake Tahoe).

Will announced that ASFPM's annual conference is in Kansas City, Missouri, April 30-May 6.

Terry Davies announced that the UNESCO IHP is Apr 26, 8:30-1:30 at the Keck Center in Washington, DC.

Siamak announced that the Urban Flooding Workshop (National Academies of Sciences study) is in Baltimore on Monday. The public portion is by invitation only. It will take place from 12-4 pm. Lauren Alexander Augustine directs the study.

Terry announced that June 16-18 is Awesome Con, which includes Science Con and Comic Con.

10. Agency business reports

Sam Lin provided the business report for FERC. The full business report is included as Attachment 3.

The NOAA Business Report is included as Attachment 4.

11. SOH workgroups reports

HMWG

Robert spoke as Claudia Hoeft was not present. The group has been meeting about the SedHyd conference location. The top three places are St. Louis, Phoenix, and one other location in the Arizona/New Mexico area. It will be a different locale than in previous years. Robert will be coming back to the group to ask someone to represent the SOH and be involved in the planning.

Tom noted that further west is good, and less vacation-oriented spots are better.

Siamak noted that everyone is in the same boat; it is not our call whether we can travel or not. The trend is to do more WebEx conferences.

Tom said that it is better if training is associated with the conference. Different agencies have different priorities for funding conferences.

Robert will take the concerns about travel budgets back to the group.

STIWG

LySanias Broyles provided the report. The work group will have a teleconference as Ken Metcalf has retired. NOAA will be hosting the biannual conference in City College, New York. The Open DCS Standardization committee has found existing MOUs that have been developed and using these as a base. They are discussing enhancements to the software. They will hopefully be developing the base level this year.

Robert asked if LySanias could send a written report, and in it to please identify the agency representatives. The STIWG report is included as Attachment 5.

Streamflow information consortium

Doug Yeskis provided the report. The charter was presented to the full ACWI meeting in February. There have also been several presentations on considerations, including the National Water and Climate snow survey and water supply forecasting programs, and using the national streamgauge network to estimate streamflow at ungaged locations. Future presentations include the NWS National Water Model and the national groundwater monitoring network.

Tom asked if there is a co-chair or vice chair? The answer is not yet. The suggestion was that the SOH should inform other hydrologic organizations such as the TVA, River Basin Commissions, and the States about the Streamflow information consortium, and to obtain their suggestions for volunteers including nominations for Vice-Chair

Tom motioned to adopt the charter. Siamak seconded. There were no objections, and the charter was adopted.

Doug Yeskis (chair) is program coordinator, evolving to program director. The vice chair does not have to be a federal member of the SOH.

The action item is to find a vice-chair for the group. Tom suggested approaching some of the river basin commissions and recruiting through them.

Data gap workgroup

Ted Engman provided the report. He sent a letter asking members to suggest members of their organization to participate and has received responses from about half the members. Meetings will be mostly email/teleconference.

Ted needs to prepare a charter and distribute before the next meeting.

Robert said Stacy would be likely to participate. Siamak said that David Sutley from FEMA may participate.

ESEWG

Tom provided the report. The new vice chair and writing team leader for the “Extreme Rainfall Product Needs Proposal” is William Otero, U.S. Army Corps of Engineers – Kansas City District. Kimberly Marks from the Office of Water Information has posted the workshop synthesis report of the May 2014 Workshop to Define Needed Extreme Precipitation Products. She will not make the report public until final word from the group following review by all agencies who provided responses to the Federal and State surveys on product needs. William Otero is continuing the drafting of the “Extreme Rainfall Product Needs Proposal.”

HFAWG

Will Thomas provided the report. The work group has been focused on improvements to Bulletin 17B since November 2005. Since April 2015 there have been several drafts of Bulletin 17C. There have been several reviews of different versions by HFAWG, SOH, public comment, and USGS peer reviewers. The latest version is dated April 10, 2017.

The major improvements to 17C over 17B are:

- historical information, interval data, and low/zero flows;
- Potentially Influential Low Floods (PILFs);
- EMA parameter estimation;
- confidence intervals, and
- estimation of regional skew.

In the last few months, the group has addressed comments from USGS technical reviewers. They have had responses from four out of the five reviewers, they did not receive responses from the fifth. The April 10 draft was sent to the group. The work group assisted the USGS in revising the Bulletin 17C web page.

Training courses were held in May 2016 at ASCE EWRI and June 2016 at ASFPM with case studies and software demos (USGS Peak FQ and HEC-SSP). HEC-SSP 2.1 was released in July 2016 with Bulletin 17C updates.

The path forward is through the USGS process of external peer review; SOH approval for USGS publication; USGS editorial review, and director approval of Bulletin 17C. Enhancements to the software, examples, and training materials will be posted on the HFAWG /Bulletin 17C website.

Training courses and webinars planned or discussed are the NHWC training course in June 2017, the USACE-HEC course in August 2017, ASFPM webinars, and additional outreach through other technical conferences.

As a summary of the peer review comments, Will reported that the reviews were all very positive and encouraging. One person listed concerns about using Bulletin 17C as drafted.

One of the key improvements to address USGS peer review comments are improvements to address concerns about the practicality of using Bulletin 17C. Flow intervals and perception thresholds will have practical concepts and examples added. Practical flood frequency steps will be added to Appendix 9. Planned training via webinars will take place. Additionally, there were concerns about where to obtain regional skew estimates in practice. The group is focusing on a Bulletin 17C resource page to respond to this.

Martin Becker commented that it may undersell USACE resource documents. Also, he had an editorial comment, that a better picture on the front of the report would be a bridge that is above water.

He also noted that the source code is the same for USGS and the USACE. Is the source code available?

Robert noted that it is USGS water software, so the contact email is on the website. All USGS software is public domain. The actual code is not on the website, but it can be provided upon request.

Martin would like to run a test with private sector engineers; he would like to design a test with Will.

Steve Yochum agreed, and noted that he can see the point of the test.

Martin asked if Steve can provide some names. Steve will try to come up with a couple names and email to Will and Martin.

Will noted that as far as moving forward, the group should keep going forward with the draft, and any additional information can be added to the website later.

Siamak noted that it is a professional engineer's responsibility to learn these models.

Martin suggested that a motion be made that the USGS be allowed to go forward to the 17C draft report, pending the results that Will and Martin come up with in the next month to be included in the editorial review.

Will thinks that if issues are found using this particular test, it will require changes to the website but not the software or the report. Robert suggested we discuss the results at the July meeting.

Tom suggested that HFAWG, Will and Martin do the testing with other people. With regard to the SOH, the committee is ready to move forward, have the USGS do the editorial review and publish the report. The SOH can vote in July.

Martin suggested a motion for the USGS to move forward with the editorial review, with results to be presented with discussion at the July 20 meeting.

Tom made a motion for the USGS to move forward with their editorial review for a vote on draft Bulletin 17C at the July 20th SOH meeting. Independent from that Will and Martin will find people to test the models in draft Bulletin 17C, and will report back on or before the July SOH meeting. Martin seconded the motion. There was no objection and the motion carried.

John England noted that all the training materials are on his webpage; it can be found by Googling 17C and John England.

Siamak and Will noted that FEMA has a process of certifying software, they have a long list of consultants who could test.

Martin replied that they need medium level people. Candidates would be someone who does it 4-5 times/year but not every day.

Tom asked about the extensive revisions to Appendix 6. John replied that these comments were from 2015.

Tom asked about the narrative in the section on Extraordinary Floods (pp. 12 -14). He asked John England to please explain why the “use of other frequency distributions, estimation procedures, or more complex models for extraordinary floods is not warranted.” Is the statement for Bulletin 17C only, and what about for other applications?

John answered that users should use Bulletin 17C and use all the data for extreme floods. Other techniques are not recommended for the 100-200 year flood. Beyond 1/100, the choice of methods is more flexible and its possible to use other techniques (such as rainfall/runoff models).

John noted that the document is lacking in guidance on change, including reservoir regulation and land use changes. This is the next area of focus.

Steve noted that he can help with more frequent flood guidance.

Robert proposed that comments, responses, checklists and markups be posted on the SOH webpage. Siamak made the motion to post all the review documents on the website. Tom seconded it. There were no objections.

Robert noted that the group needs to discuss a reconstituted HFAWG. Tom’s agency is very focused on extreme floods.

12. Review actions and plans for next meeting

The next meeting is July 20th. **Robert will find another place to host the meeting. Robert will find a topic/feature presentation.**

Other action items (from earlier) in the meeting:

- **Determine the date and location of the face-to-face ACWI Fall meeting**
- **Work groups to submit reports**
- **Agencies to submit business reports**
- **Streamflow information group to find a vice chair**
- **Martin and Will to find independent hydrologic practioners to conduct testing of the Bulletin 17C models**
- **Robert to take group concerns about travel budgets back to HMWG to consider**
- **Ted to prepare a charter for the data gaps group and distribute**

13. Meeting Adjourn

Martin motioned to adjourn, Ted seconded. The meeting adjourned at 3:40 pm

Attachment 1 – Attendee List

Ben Pratt	in person	NHWC
Joseph Kanney	via phone	NRC
Jessica Voveris	via phone	NRC
Stephen Breithaupt	via phone	NRC
Martin Becker	via phone	BECKER
Thomas Nicholson	in person	NRC
Scott Rogerson	via phone	NESDIS
Will Thomas	via phone	ASFPM
Ed Beadenkopf	in person	Atkins
Pravin Rana	via phone	EPA
Jordan Bell	via phone	NASA
Teresa Davies	in person	NSF
Ted Engman	in person	NASA
Doug Yeskis	via phone	USGS
Brian Beucler	via phone	FHWA
Laura Chap	In person	Atkins
Dr. Jerry L Coffey	via phone	
Steven Yochum	via phone	USFS
Dongsoo Kim	via phone	NWS
Siamak Esfandiary	in person	FEMA
Sam Lin	via phone	FERC
Sujay Kuma	via phone	NASA
Robert Mason	in person	USGS
Julie Kiang	via phone	USGS
Dave Goodrich	via phone	ARS
Jack Felbinger	via phone	OSWRE
LySanias Broyles	via phone	USACE
John England	via phone	USACE
Stacy Archfield	via phone	USGS

**MEETING OF THE
ADVISORY COMMITTEE ON WATER INFORMATION'S (ACWI)
SUBCOMMITTEE ON HYDROLOGY (SOH)
12:30 p.m. – 3:30 pm, Eastern Standard Time
Thursday April 20, 2017**

Location: **Atkins. Inc.**

 3901 Calverton Blvd, Suite 400

 Calverton, Maryland 20705

Attendees: **Please register in advance via the survey monkey (see URL below) as we will be providing this list to security for expedited check-in. Please bring government-issued ID or badge. Please allow 25 minutes for logistics.**

Problems? **Laura Chap, Office: (301) 210 6800; Robert Mason, cell: (703) 405-5823**

Meeting Instructions and Resources:

1. In the interest of time, we will be using the survey monkey to do our roll-call. Please register before COB on April 17, 2017 via <https://www.surveymonkey.com/r/XZXNY7X>.
2. WebEx link:
<https://usgs.webex.com/usgs/j.php?MTID=med71fff4600acc9b882859049673d3be>
3. Conference call Number(s): 703-648-4848
ACCESS CODE: 20387
Note: PC weblink for meeting will be open around 5-10 minutes prior to the meeting. Please allow ample time to setup your computer.

I. Tentative Agenda

- | | |
|---|--|
| 1. Welcome (5 mins) | Robert Mason |
| 2. Words from our Host (10 mins)
<i>Logistics: Facilities, Emergency Exits, Internet Access</i> | Laura Chap |
| 3. Roll-Call (Remote Participants/In-Person Attendees)
• <i>Please see attendee list.</i> | SOH Members and Guests |
| 4. Review and Approval of Agenda (2 mins) | Robert Mason |
| 5. Background on SOH (5 mins) | Siamak Esfandiary |
| 6. Feature Presentation (~60 mins)
• <i>Guest Introduction</i> | (1:00 – 1:45 PM)
<i>Robert Mason</i> |

- **Flood Trends and Attribution**

Dr. Stacey Archfield, USGS National Research Program, Reston, VA

- *Questions/Answers/Discussion*

All

BREAK (2:15 – 2:30 PM)

7. **Approval of the October 2016 Meeting Summary (2 mins)** Robert Mason

8. **Status of Action Items from October 2016 Meeting (5 mins)** Robert Mason

9. **Announcements (10 mins)**

10. **Agency Business Reports**

11. **SOH Workgroups (30 mins)**

- [HMWG](#)
- [STIWG](#)
- *Streamflow Info Consortium*
- *Data Gaps*
- [ESEWG](#)
- [HFAWG](#)

*Claudia Hoeft
LySanias Broyles
Doug Yeskis
Ted Engman
Tom Nicholson
Will Thomas*

11. **Review Actions and Plans for next SOH meeting (15 mins)** Robert Mason

12. **Next Meeting:** All

- *Thursday July 20, 2017 from 1230PM to 330PM EDT (Tentative)*
- *Location: TBA*
- *Guest Speaker Topics? Suggestions??*

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

FERC Report for SOH Meeting of 4/20/17

- On January 31, FERC staff met with the California Division of Safety of Dams and El Dorado Irrigation District along with their consultants to discuss alternatives for remediation or replacement of Silver Lake Dam, a part of the El Dorado Project to safely withstand the design probable maximum flood (PMF).
- On February 7-8, FERC Staff participated in the third Board of Consultants (BOC) Meeting regarding the Site Specific Probable Maximum Precipitation and PMF (SSPMP/SSPMF) study associated with the Gross Dam Project in Colorado. In addition to FERC staff, and board members, Denver Water (licensee), consultants, and government agencies attended the meeting.
- On February 28-March 2, FERC staff participated in the third review board meeting in Albuquerque, New Mexico, for a statewide PMP study for the States of Colorado and New Mexico. The review board, including representatives from the USACE, BOR, and NOAA, discussed the technical methods used in the study. Results of the study may be used in the future for spillway designs at FERC regulated hydropower dams.
- The spillway erosion emergency incident at Oroville Dam: Oroville Dam, owned and operated by the licensee, California Division of Water Resources (CDWR), is an approximately 770 feet high embankment dam located on the Feather River in Butte County California. The incident occurred February 7, 2017, while releasing 50,000 cfs through the concrete chute service spillway. Initial reports show the damage consists of a hole in the spillway 45 feet deep at its deepest location, with 50 feet of undercutting in the spillway invert. Another unarmored, ungated earth and rock spillway also experienced excessive erosion on February 12, 2017 after it was activated (1.7 feet of flow depth at 12,000 cfs) following closure of the service spillway gates. The FERC required the CDWR to convene an independent BOC to propose emergency repair or risk reduction actions and permanent fix alternatives. Also, an independent forensic analysis team has been organized by the CDWR to explore the root cause of the spillway damages. The FERC has also contracted its own consultants and internal team to investigate the spillway incident, and review temporary and permanent repair plans. More information can be found at: http://www.water.ca.gov/recent_news.cfm

Attachment 4 – NOAA Business Report

SOH Member Business Reports (April 2017)

NOAA

NOAA NWS Weather Ready Nation

NOAA's Weather Ready Nation is about readying our communities for extreme weather, water, and climate events. In the [February 2017 edition](http://www.weather.gov/publications/aware) of Aware (<http://www.weather.gov/publications/aware>), NWS had posted an article describing NWS and emergency managers in action during the Southern California January 2017 floods. This article was later expanded to include pictures illustrating how the NWS Weather Forecast Office in San Diego had worked with our partners (fire, police, emergency managers, and key decision makers) to prepare for one of the most significant storms to hit southern California in the past 6 years. Please visit the [NWS Weather Ready Nation](http://www.nws.noaa.gov/com/weatherreadynation/news/172702_idss.html) webpage and see the article: http://www.nws.noaa.gov/com/weatherreadynation/news/172702_idss.html

NOAA Sentinel Site Summit

On March 14 to 16, NOAA held the Sentinel Site Summit. The summit provided an opportunity to bring together the five Sentinel Site Cooperative coordinators and federal partners from NOAA, the U.S. Fish and Wildlife Service, National Park Service, Smithsonian Institution, Federal Emergency Management Agency, and the U.S. Army Corps of Engineers to explore opportunities and coordinate investments to address the impacts of sea level rise and changing coastal inundation patterns. The five coordinators described their regional activities to address locally identified issues of management concern, such as coastal flooding, habit loss, saltwater intrusion, and adaption planning. The summit also help broaden the Sentinel Site program's partnership base and identify potential new collaborations to improve efficiency and reduce redundancy in the federal programs for coastal community adaptation to rising tides. Please check out the Sentinel Site Webpages to learn how NOAA and our partners are using resources wisely to build more resilient communities: <http://oceanservice.noaa.gov/sentinel/sites/>.

NOAA Spring Climate and Flood Outlook

On March 16th, NOAA released the 2017 spring climate and flood outlook, which had noted the near-record warmth across much of the USA during the past winter and identified the areas with the large amounts of snow, thus raising the risk of flooding in the Northern Rockies, the Northern Plains, and New England. For access to the video, images of the spring outlook graphics, spring flood potential, and the worsening drought conditions with places susceptible to wildfires, please see visit the climate.gov webpage: <https://www.climate.gov/news-features/videos/2017-us-spring-climate-and-flood-outlook>.

Subcommittee Hearing on National Water Hazards & Vulnerabilities: Improved Forecasting for Response & Mitigation

On April 4th, Dr. Louis Uccellini, the Director of the National Weather Service, was invited to provide testimony on how NWS and NOAA are working with our partners (federal, state, local, and tribal officials, the academic community, and the private sector) to improve water prediction and better inform critical decisions to address those water risks. Statements from Dr. Uccellini, Dr. Antonio Busalacchi (University Corporation for Atmospheric Research), Ms. Mary Glackin (The Weather Company, IBM), Mr. Bryan Koon (Florida Division Of Emergency Management), and Honorable Senator Richard Shelby are available on the following website: https://www.appropriations.senate.gov/hearings/national-water-hazards-and-vulnerabilities_improved-forecasting-for-response--mitigation.

Attachment 5 – STIWG Report

1) The STIWG meeting will be a teleconference this year versus a face-to-face in mid-September. NOAA will be hosting the Biannual Satellite Conference at City College, New York, NY opening July 15, 2017 (International Workshop) with the conference convening the July 17 - 20.

2) The STIWG OpenDCS Standardization Subcommittee is implementing an interagency funding mechanism to support and enhance OpenDCS. OpenDCS is the Java software run by every STIWG agency to decode, validate, transform and disseminate the DCP data received over GOES, LRIT as and other mediums. We have selected the Cove variant of the software as the baseline and will be working with both Cove and Sutron for development and the Corps of Engineers' Hydrologic Engineering Center (HEC) will be managing the contracts in conjunction with Sacramento District.

There are currently MOA's and MOU's in place between the Corps and all but two STIWG agencies (Forest Service and International Boundary and Water Commission) that provide the groundwork to jointly fund support and development of the software versus as individual agencies to leverage our resources and better coordinate software development. I am working with HEC and USACE Headquarters to find any district level agreements that apply to the Forest Service and IBWC and the STIWG agencies are looking for any agreements that they may have with them as well to ultimately encompass all agencies. Our first order of business is to get an estimate to incorporate the Sutron enhancements funded by NOS into the baseline software; will be the first release of the STIWG OpenDCS software based on the unified platform.

3) The STIWG DCS Preservation Subcommittee is still active and remaining abreast on the FCC proceedings deliberating the proposed sharing of the 1675 - 1680 MHz terrestrial radio spectrum with Ligado; pursuing a national wireless network for advanced wireless devices (cell phones, tablets, etc.). This 5 Mhz band represents the lower end of the GOES 1675 - 1695 MHz GOES allocation and has shown to cause debilitating interference with hydro-meteorological data collection systems (e.g. GOES and L/HRIT); impacts the receipt of water levels, stream flow, dissolved oxygen, air/water temperature, fire weather conditions, earth and space weather products and imagery, etc. Over 8 million hydro-met and water quality observations are transmitted through GOES each day and used by federal, state and local agencies as well as private industry and academia.

STIWG agencies are encouraged to remain actively engaged with their IRAC representatives to convey STIWG concerns and provide proper context and facts in response to submitted claims promoting spectrum sale and eventual sharing. The proposed alternative to direct satellite receive systems is commercial internet/cloud based content delivery systems developed by Ligado. One of the principal problems with cloud-based systems (especially during floods, storms and other natural disasters) is the infrastructure providing the data via the proposed content delivery network is usually adversely impacted and unavailable during these events when the data is most crucial. The existing distributed direct receive systems provide the most reliable and timely method of receiving GOES data that is critical to mission completion and protection of life, property, safety and critical infrastructure and is insulated from the common threats that disable internet based systems.

Attachment 6 – HFAWG Report