



FRM

Flood Risk Management Newsletter

2015 Flood Risk Management and Silver Jackets Awards

Wave Information Studies Effort Provides Valuable Information for Coastal Projects

Spotlight: The Tulsa District Silver Jackets Team





Flood Risk Management Newsletter



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FRM Newsletter

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Framework for Flood Risk Management

By Mark Roupas, Deputy Chief, Office of Homeland Security



Happy New Year! It is an honor to be opening this edition of the Flood Risk Management Newsletter. I am very excited to be serving once again as Deputy Chief of the Office of Homeland Security and as Director of the National Flood Risk Management Program (NFRMP).

Members of the NFRMP, myself included have just returned from the 2015 Flood Risk Management Workshop and as I write this article, and I must say it was another fantastic workshop. This year, we had a welcome opportunity to get together with our internal team on the first day and then we met with our interagency partners on the following days. On the first day, we met with approximately 100 USACE representatives from HQ, IWR, each Division, and each District. Participants represented FRM, Silver Jackets, Levee Safety, Emergency Management, and Planning, which gave us the opportunity to coordinate and collaborate on flood risk management challenges affecting all of us. Over the next three days, our numbers nearly doubled as we were joined by representatives and subject matter experts from six other Federal agencies, 37 states, as well as local participants, the private sector,



Ms. Karen Durham-Aguilera, Mr. Mark Roupas, representatives of the New England District, and field trip participants walk along the Hartford Levee System on the final day of the 2015 Flood Risk Management Workshop.

non-governmental organizations, and academia. This provided us the opportunity to coordinate to strengthen our collaborative efforts to reduce and manage flood risk. We focused our efforts on the intersection of flood risk management and resilience, and identified ways to increase resilience as we address flood risk through efforts such as the interagency projects. Both opportunities were very valuable, and I hope we are able to hold similar workshops again in the future.

As I reflect on what I heard at the workshop, I come back to the framing that Ms. Karen Durham-Aguilera, Director of Contingency Operations and Homeland Security, and proponent for the NFRMP used in her opening comments. She stated that successful flood risk management requires four things – collaboration, risk assessment skills, communication skills, and strong doctrine. I would like to spend the next few paragraphs reflecting on how we addressed each of these components throughout the workshop, which will lead us to more successful flood risk management efforts in the future.

Our internal meeting was heavily focused on the doctrine behind FRM. Throughout the morning, we heard from numerous subject matter experts on the policies and frameworks that support FRM, efforts to update internal guidance relevant to FRM, and ongoing efforts within other Communities of Practice that will influence FRM. In the afternoon, we received a brief overview of the history of the NFRMP, received some statistics regarding the support this program has received from the Administration (i.e., the level of funding that has been provided, which has been increased in recent years), and learned about an effort, recently begun, to develop revised program guidance for the NFRMP. Participants then broke out into small discussion groups to provide feedback on how proposed draft revisions of the program vision, mission, and principles may impact their day-to-day operations. Additional feedback was provided on the opportunities and challenges that participants believed the program faced moving forward. This feedback will be valuable to the team leading the effort to develop revised guidance.

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Risk assessment skills were covered throughout both the internal and interagency portions of the workshop. We heard extensively from Mr. Eric Halpin (USACE) on the USACE Levee Safety Program, and initial plans for a National Levee Safety Program. Dr. Kate White (USACE) also spoke during both the internal and interagency portions of the workshop on current initiatives related to climate change as well as several very exciting tools recently developed or in the process of being developed to assess and analyze climate change trends. During the interagency portion of the workshop, several small group break-out sessions were held which focused on developing interagency projects that relate to the intersection between FRM and resilience. The first of these break-out sessions focused on assessing and articulating the risk that an interagency project would address.

Communication skills were also a strong theme throughout the internal and interagency portions of the workshop. Mr. Brian Harper (USACE) shared progress on developing a guidance document that will provide a more common framework for those within USACE to think about and communicate risk. Mr. Halpin's presentations on Levee Safety also included information about communication of risk associated with levees, including the Policy Guidance Letter that was recently released. The panel session "Connecting Science to Action and Adaptation", which featured Dr. Kate White, Ms. Adrienne Harrison (NOAA OCM), Mr. Jason Needham (USACE), Ms. Rachel Carr (Nurture Nature Center), and Mr. Terry Zien (USACE), provided numerous examples of communicating flood risk. This panel highlighted more effective ways to communicate imminent floods and evacuation information to those impacted and use of more effective tools, such as inundation maps and emergency action plans, to communicate before, during, and after flood events. The benefits of identifying additional



Participants of the 2015 Flood Risk Management Workshop listen to a speaker during a plenary session on Day 2 of the workshop.

partners to participate in interagency flood risk management projects and risk communication was also stressed during the interagency workshop. Finally, approximately 25 of our participants were able to attend a field trip on Friday morning to the Hartford Levee System. The City of Hartford, the levee sponsor, has incorporated high water marks and signage about flooding into the riverside path to communicate flood risk, and is in the process of developing additional interim risk reduction measures. This led to very interesting discussion among the field trip participants and City representatives, where we were able to share ideas and strategies for risk communication for future consideration.

The final, vital component of flood risk management – collaboration – was again the cornerstone of our workshop. Much of the internal workshop was focused on ensuring that within USACE we are collaborating across business lines and functional areas to ensure we understand the flood risk challenges being faced and are able to develop the most comprehensive solutions available. After our partners joined, the focus continued to remain on how we could better collaborate in the interagency environment. We heard about numerous existing or on-going interagency projects that highlighted the benefits of, as well as innovative techniques that can be used

for collaboration. Given the theme of the workshop was the intersection of flood risk management and resilience, the purpose of the interagency portion of the workshop was to develop more effective collaboration to strengthen local resilience as we address flood risk management. The three small group break-out sessions allowed members of Silver Jackets teams time to develop ideas that incorporated the concepts of resilience and collaboration that we discussed throughout the workshop. I look forward to seeing the evidence of the successful collaboration that occurred throughout the workshop in future interagency proposal submissions.

In closing, I would like to thank everyone who attended the workshop, and those who participated virtually, for helping to make it a hugely successful and exciting week. I would also like to thank all of our speakers, only a few of whom I had the room to mention in this article, for their time in developing fantastic, engaging presentations and taking the time for dialogue with our participants throughout the week. I am amazed at all that has happened within the FRM community since I attended my first workshop in August 2014, and look forward to seeing and hearing all the progress that will be made when we hold our next workshop! 

2015 Flood Risk Management and Silver Jackets Awards

On 4 December, as part of the closing plenary of the 2015 Flood Risk Management – Silver Jackets Workshop, Ms. Karen Durham-Aguilera and Mr. Mark Roupas continued the tradition of recognizing excellence in the Flood Risk Management and Silver Jackets Programs. Ms. Durham-Aguilera used this opportunity to recognize the recipients of the 2015 Flood Risk Manager of the Year, Silver Jackets Coordinator of the Year, and Silver Jackets State Team of the Year. These awards are intended to recognize outstanding individuals and teams who exemplify the goals and objectives of the programs.

The Flood Risk Management and Silver Jackets Programs continue to make progress in integrating our partners who have a role in managing flood risk. In honor of that success, we are presenting three awards for excellence in these programs. We applaud achievements of the Flood Risk Manager of the Year, the Silver Jackets Coordinator of the Year, and the Silver Jackets State Team of the Year as they greatly reflect upon our community and our organization.

2015 Flood Risk Manager of the Year Award

The 2015 Flood Risk Manager of the Year Award is Mr. Jason Miller of the Philadelphia District. Mr. Miller is recognized for his outstanding dedication to serving the stakeholders and citizens of floodplain communities within the Philadelphia District AOR while strengthening both internal and external partnerships. His work ethic, versatility, attitude, dedication, leadership, and vision have enabled an impressive integration of the many facets of FRM. He both fields and mentors others in FPMS requests for technical assistance



Ms. Karen Durham-Aguilera presents Jason Miller with the 2015 Flood Risk Manager of the Year Award.

and information, provides GIS support for public outreach, fosters internal partnerships through the District Levee Safety Committee. Mr. Miller also fosters external partnerships through District representation on the Delaware River Basin Flood Advisory Committee, as well as serving as the USACE lead for the New Jersey and Delaware SJ teams and supporting the Pennsylvania team. He has attended FEMA Open House and Flood Risk Review meetings, and participates on the Interagency Coordinating Committee on Hurricanes. He presented at the Emergency Managers Forum and participated in the NJ Emergency Preparedness Conference, and served as the USACE lead for the 2014 Pennsylvania State Hazard Mitigation Plan update, as well as reviewing the New York State Hazard Mitigation Plan update. He also formed a Corps subcommittee with dam safety managers at 3 Corps Districts to share information. Mr. Miller is also



Ms. Karen Durham-Aguilera presents Brandon Brummett with the 2015 Silver Jackets Coordinator of the Year Award.

recognized by those outside of USACE. Under his leadership, the Philadelphia District Floodplain Management Branch has been recognized for excellence by FEMA through their selection to develop non-regulatory mapping products, which are an important aspect of flood risk communication.

2015 Silver Jackets Coordinator of the Year Award

Mr. Brandon Brummett of the Louisville District is the recipient of the 2015 Silver Jackets Coordinator of the Year Award. Mr. Brummett has consistently demonstrated professionalism and commitment to collaboration in his role as USACE lead for the Indiana and Kentucky Silver Jackets teams. Due largely to his leadership, these teams have seen significant growth since they formed and have performed numerous successful interagency projects to reduce and manage flood

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Ms. Karen Durham-Aguilera presents the Oregon Silver Jackets Team with the 2015 Silver Jackets State Team of the Year Award.

risk. Since its formation in 2006, agency representation on the Indiana team has doubled to over 30 members. He also regularly shares his expertise among teams and the USACE FRM CoP. Mr. Brummett has been instrumental in successfully communicating available USACE resources and leveraging partner funds, capabilities, and expertise in flood risk mitigation, leading to a number of successful interagency projects. Interagency projects have included the development of a floodplain management guide for local citizens and governments, identification and outreach for non-levee embankments, Flood Inundation Map libraries throughout the state, regional mapping of potential streambank erosion zones and community assistance to sustainably place utilities, and the Emmy-award winning PBS documentary “When Every River Turned Against Us: Lessons from the Great 1913 Flood.”

Silver Jackets State Team of the Year Award

The Oregon Silver Jackets Team is the recipient of the Silver Jackets Team of the Year Award. The Oregon Silver Jackets Team, a sub-committee of the State Interagency Hazard Mitigation Team, is recognized for their exemplary progress in flood risk management and the state is a model for the SJ program. The team has collaboratively developed a Rapid Assessment of Flooding Tool (RAFT) to combine data available from multiple sources to estimate flood frequencies of recent and forecasted events across the state. This information is immensely useful in prioritizing emergency preparedness and post-disaster activities and has benefits to levee safety activities. In addition to being recognized as a useful tool in Oregon, RAFT has been recognized as useful by neighboring states and is

now being expanded to incorporate these additional states. The team has also focused on developing improved methods to collect and store perishable data after flood events, collectively outlining the Perishable Data Plan for Oregon, which was invoked after flood events, and developing a Statewide Flood Hazard Layer database to provide a common location for historical data, floodplain mapping products, and high water mark data. Further, the team has developed and participated in numerous public education and outreach activities. They have particularly focused on providing educational information directly to the public. Activities include a ‘one-stop-shopping’ web page with multi-agency links for Oregon residents, a multi-agency state-wide flood awareness campaign based on the fiftieth anniversary of the devastating 1964 Christmas flood, and numerous community High Water Mark signs. ■

Hydrologic Engineering Center Flood Damage Analysis (HEC-FDA) Version 1.4 Released

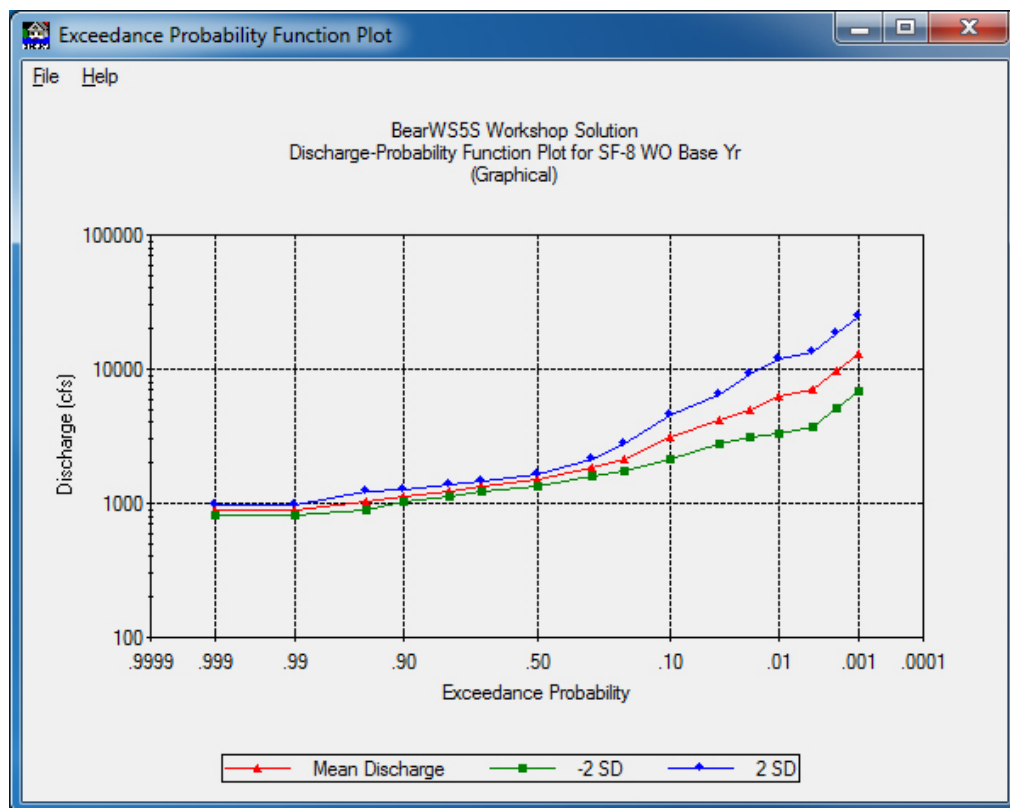
By John Kucharski, Institute for Water Resources

The Corps' most widely used decision support tool in flood risk management investigations, the Flood Damage Analysis (HEC-FDA) software, recently received an update. The HEC-FDA program has been around for nearly two decades (version 1.0 was released in 1998) and is now a critical component of virtually all Corps flood risk management investigations.

The HEC-FDA accepts economic and engineering inputs such as structure inventories, probability-exceedance relationships and rating curves often developed in other HEC software programs. Its outputs provide study teams, decision makers, and the public with fundamental information about the flood risks that threaten study areas; the flood damage reduction benefits that alternatives are predicted to generate, and the performance existing projects and imagined designs are expected to deliver. The newest version of HEC-FDA, version 1.4, was released on the Hydrologic Engineering Center (HEC) website (www.hec.usace.army.mil) in August 2015. It includes one important computational change related to probability-exceedance relationships.

"The biggest change to the version 1.4 software comes in the way that graphical inputs are used to compute probability-exceedance functions with uncertainty."

When starting a new study in HEC-FDA users are quickly presented with an important choice: to provide analytical



An example of a probability exceedance function plot from the Flood Damage Analysis (HEC-FDA) software, version 1.4.

or graphical probability-exceedance inputs. This choice is important because uncertainty about these inputs generally has a bigger impact on the program's results than any other source of uncertainty. Since analytical relationships describe natural (unregulated) flow-frequency patterns, well established procedures and methodologies can be applied to the development of the resultant flow frequency relationships.

In fact these procedures and methods have been broadly accepted by most federal water resource agencies and are described in bulletin 17B of the Interagency Advisory Committee on Water Data's Hydrology Subcommittee, published in 1981. As a result, analytical inputs are generally preferable to graphical ones, even when the observed

stream flows are influenced by regulated discharges. When study area stream flows are influenced by upstream regulating structures such as dams or weirs, analytically-based relationships are paired with inflow-outflow functions in HEC-FDA to transform unregulated stream flows (from the probability-exceedance function) into regulated discharges that better represent the observed flows frequency relationships. HEC staff are always available by phone or email to assist users in utilizing this and other capabilities.

The biggest change to the version 1.4 software comes in the way that graphical inputs are used to compute probability-exceedance functions with uncertainty. Graphical curves are often used when stream flow regulation

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is diffuse or unregulated flows are otherwise difficult to estimate. Graphical inputs are composed of a mixture of natural flows and regulated discharges that are influenced by human decision makers. As a result there are unavoidable difficulties associated with using this information to produce flow or stage frequency functions with uncertainty. In comparison to previous versions of the HEC-FDA program the computation method employed in version 1.4 produces more consistent graphical flow or stage uncertainty values (shown in blue and green in the function plot graphic) with regard to the period of record length.


This computational improvement (and all the other changes to the HEC-FDA version 1.4 program) underwent significant testing and review by Corps subject matter experts as part of the normal model development as well as review and certification by the Flood Risk Management Planning Center of

Expertise and USACE headquarters in accordance with Engineering Regulation 1105-2-412. Ultimately, the model reviewers and certification panel agreed that the version 1.4 software represents a positive step forward in the continual process of model refinement and improvement.

“Users will notice little to no change in the software interface and in many cases negligible changes to their study results when transitioning to version 1.4.”

Users will notice little to no change in the software interface and in many cases negligible changes to their study results when transitioning to version 1.4. However, since flow or stage uncertainty

often has a large impact on the programs outputs, the result of the change on study results can occasionally be large. As an unbiased improvement the polarity (e.g. direction) of the change (in flow, stage or results) cannot be generalized, but HEC staff will always be available to help users better understand their model results.

As is true of all HEC software, the HEC-FDA program is provided free of charge. It is available for download at www.hec.usace.army.mil/software/hec-fda/downloads.aspx additional information about the HEC-FDA software including its user's manuals, model certification documents and release notes can be found at www.hec.usace.army.mil/software/hec-fda/documentation.aspx. 


New HEC-FDA Program Manager



The Corps HEC-FDA team has a new face. John Kucharski joined HEC in October as the new HEC-FDA program manager. John began his career with the Corps of Engineers as an Economist with the Los Angeles District and most recently served as a Regional Technical Specialist in Flood Risk Management Economics at the Sacramento District.

Along the way he's had the privilege of working on a number of excellent teams and fascinating projects including the Santa Ana River Mainstem Flood Risk Management Project, Los Angeles River Ecosystem Restoration Feasibility Study, Central Valley Integrated Flood Management Watershed Study, Climate Risk Informed Decision Analysis Manual, Civil Works Budget

Transformation team and several International Center for Integrated Water Resource Management (ICIWaRM) initiatives.

Prior to coming to the Corps, John worked as an economist and consultant on international development projects with the World Bank, International Monetary Fund, Inter-American Development Bank, and others. He replaces Robert “Bob” Carl who developed the Flood Damage Analysis (HEC-FDA) software version 1.4, as well as other previous versions of the HEC-FDA software, prior to his retirement in December of 2013. Bob continues to serve as an invaluable resource to the software development team and users as a rehired annuitant. 

John Kucharski, new HEC-FDA Program Manager, teaching AP physics students in early 2015 about the destructive force of flood using water management computer models.

Beach-fx Training Course Held in Savannah

By Mark Gravens, Engineer Research & Development Center – Coastal and Hydraulics Laboratory



Attendees and instructors for the 2015 Beach-fx training course held 19 Oct 2015 at the Savannah District.

A group of 27 Corps economists, planners and engineers met on October 19, 2015 at the NAS district offices in Savannah, GA to be trained on the economic engineering model, Beach-fx.

The course was organized by Naomi Fraenkel (NAD) and Terry Stratton (SAD) with the material taught by Alissa Miller and Mark Gravens (ERDC-CHL). This was a significant training opportunity; it has been several years since the previous Beach-fx training was offered. Also significant was the large contingency of economists who participated in the course with engineers and planners. This provided

“This was a significant training opportunity; it has been several years since the previous Beach-fx training was offered.”

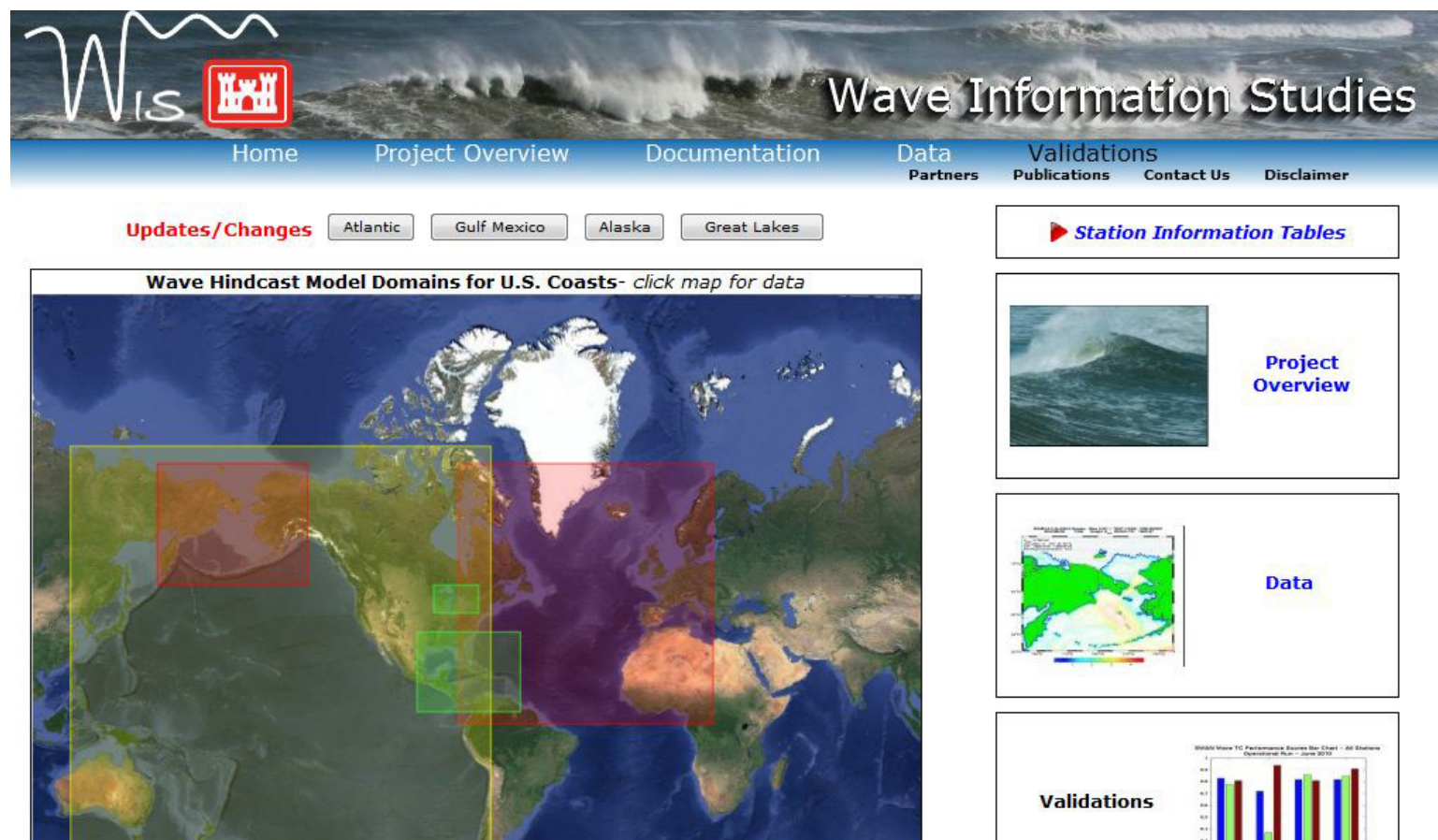
an opportunity for valuable exchange between users from the engineering, planning and economic communities of practice and provided insights to the Beach-fx developers from a variety of perspectives. This valuable feedback will be used for model improvements by the model development team.

The interaction between course instructors and participants led to fruitful discussions and an effective learning experience. There are tentative plans to offer Beach-fx training in the June-September 2016 time frame, provided there is sufficient interest.

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Wave Information Studies Effort Provides Valuable Information for Coastal Projects

By Bob Jensen, Engineer Research & Development Center – Coastal and Hydraulics Laboratory



The Wave Information Studies (WIS) website from which coastal data can be accessed and downloaded.

The Wave Information Studies (WIS) effort has been established to provide decades of validated wave estimates along all US coasts including the Great Lakes. Knowledge of the climatology of the atmosphere and waves is required for planning, design, construction, and maintenance of USACE projects in the coastal zone. Such information is scarce due to the lack of point source measurements at locations over time periods long enough to be statistically significant. This lack of information is a critical problem for USACE planning, flood risk management, operations, engineering and project maintenance near the coast. The WIS effort aims to meet this need.

The objective of WIS is to provide high-quality coastal wave hindcast model estimates, wave analyses products, and decision-support tools nationwide. Wave estimates are hindcast using high quality wind fields, ice fields where appropriate, and the latest wave modeling technology. To satisfy the Corps requirement for risk-informed designs, at least 20-30 years of continuous wave climatology data are required. Hindcast datasets provide hourly wave information for locations every few miles along the coast. The long-term hindcast wave data are accessible through a website for data downloads (<http://wis.usace.army.mil/>). Available gauge observations are used to evaluate the hindcast/model estimates, to quantify actual conditions, and to understand long-term wave climatologies.

WIS has completed continuous hourly wave estimates (height, period and direction) for the period 1980 through 2013 in each of the following five major regions: Atlantic, Gulf of Mexico, Pacific, Western Alaska and all Great Lakes. Every year, WIS will append yearly estimates, and will add extreme storm events pre-1980 extending the storm climatology back to the early 1900s. Along with the online files available on the website, there are various products (time plots, wind/wave roses, duration plots, mean/max, percent occurrence tables), and extremal (Return-Period) tables and graphics.

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Bioengineered Material for Erosion Control

By Steve Larson, Engineer Research & Development Center – Coastal and Hydraulics Laboratory

A recent advance in bioengineered material that was initially developed through military-funded research has shown significant promise and potential use in erosion control and slope stability applications in Civil Works and Flood Risk Management projects.

A naturally occurring, non-petroleum based biopolymer, known as an extracellular polymeric substance (EPS), is generated by stimulating the *Rhizobium tropici* symbiotic bacteria. The EPS biopolymer replaces petroleum-based polymers for soil application in erosion control, slope and bank stabilization, dust suppression, re-vegetation and crop production. Application of the EPS biopolymer to soil reduces maintenance costs incurred by repeated attempts to re-vegetate and repair erosion ruts and gullies created by stormwater runoff before grass is established on levees. Additionally, it encourages early rapid growth of the selected grass species allowing them to outcompete undesirable plant species, improves over-wintering success of grasses, increases drought tolerance, and inhibits soil erosion on slopes.

Two field demonstration projects were conducted last year in the Sacramento and Fort Worth Districts to evaluate the effectiveness of the EPS biopolymer in real world conditions. In the Fort Worth project, the biopolymer was applied to the Kaufmann Levee in a new levee construction rapid re-vegetation study. The study resulted in a factor of 2 increase in seed germination, and 130-800% increases in root length, surface area, average diameter, volume, tips and forks compared to control conditions.

The Sacramento project tested the ability of the EPS biopolymer to add the establishment of riparian vegetation species in a channelized river that had a history of repeated establishment



Liquid EPS biopolymer being applied to a test levee with grass seed using standard hydroseeding equipment.



Comparison of untreated and EPS biopolymer-treated roots.

failures due to frequent drought and infrequent high flow conditions. The Knights Landing site on the Sacramento River was tested by mixing the EPS biopolymer with the native soil to enhance the establishment of native species, increase their drought tolerance, and increase the soil's resistance to erosion due to cracking. In addition to benefits in root growth, treated soils demonstrated significantly less soil cracking in quantify and depth along with improvements in resistance to erosion.

Production of the EPS biopolymer is a patented process and is licensed to two commercial producers who manufacture the biopolymer in a powder or concentrated liquid that can be applied directly as a soil amendment or mixed with grass seed using hydroseeding equipment. Estimated cost of application ranges from \$60-\$120 per acre.

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Spotlight: The Tulsa District Silver Jackets Team

By Bill Smiley, Tulsa District




A Corps employee documents the elevation along Village Blvd. in McAlester, OK, as part of the High Water Initiative Program.

The Tulsa District Silver Jackets Team has a tradition of collaboration internally with USACE staff and externally with federal partners, private and public organizations. Our team facilitates projects that strive to achieve both tangible and intangible benefits aligned with the concepts of the USACE Flood Risk Management Program.

Our team facilitates discussions with public and private entities focused on outcomes that lessen risks associated with flood water impacts. Internally, our team is comprised of Emergency Management, Programs and Project Management Staff, Floodplain Management, Levee Safety and Dam Safety. Our Programs and Project Management Staff lead the team's activities in a collaborative approach whereby all team members have input into projects and provide their specific subject matter expert level input.

Our State Hazard Mitigation Team is the key external partner that guides our Silver Jackets programs to assure alignment with the Oklahoma Hazard Mitigation Team. These key elements assure that we continue to execute projects that buy down risk on a statewide level.

A recent project with FEMA included a high water mark initiative in which we developed teams to take and record high water marks to be utilized in analyzing impacts of flood water damages. A secondary benefit of this initiative was to communicate future risk and develop projects with FEMA to increase resilience in Oklahoma communities affected by floods.

The benefits of collaboration impact both internal staff and external partners. These benefits support the communities where we live to become more resilient through the gained confidence knowing that their community can recover faster from flood water events. 

The Technical Mapping Advisory Council Releases Recommendations Regarding NFIP Mapping

By Nancy Blyler, Headquarters USACE

In October 2015, the Technical Mapping Advisory Council (TMAC) completed interim reports which include specific recommendations for improving the national flood mapping program:


- **TMAC 2015 Annual Report**, including recommendations as to how to improve specific elements of the flood mapping program such as the mapping products, program performance metrics, standards, guidelines, map maintenance, delegation, and interagency and intergovernmental coordination.
- **TMAC 2015 Future Conditions Risk Assessment and Modeling Report**, with recommendations to help FEMA ensure Flood Insurance Rate Maps (FIRMs) incorporate the best available climate science to assess flood risks and ensure that FEMA may use the best available methodology to consider the impact of the rise in sea level and future development on flood risk.

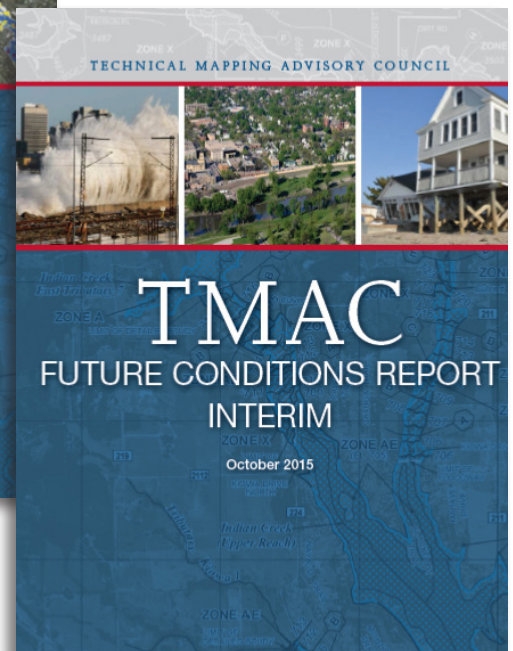
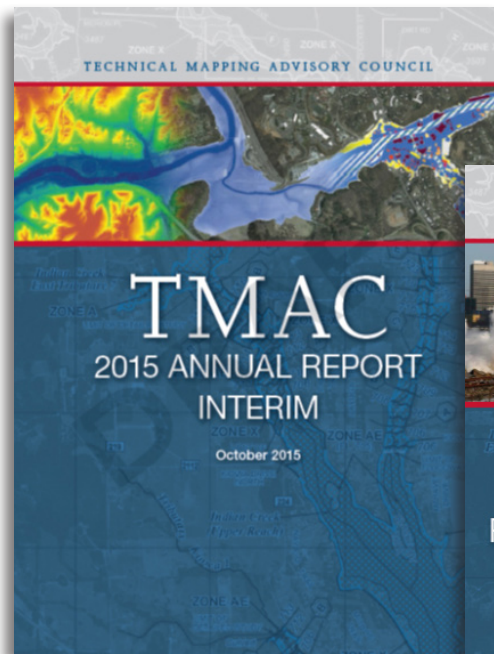
These reports were developed over the course of a year and the members included those representing federal government organizations (FEMA, Department of Interior, Department of Agriculture, Commerce for Oceans and Atmosphere, USGS, and the USACE), State and local government representatives, and professionals with expertise in the areas of GIS, surveying, mapping, engineering, risk management, storm water management, and floodplain management.

The 29 interim recommendations outlined in the reports tend to orient around key themes such as communications, coordination, data and tools, data analysis methods, management, and flood risk assessment. Highlights include emphasizing

“The TMACs work is not done and they are actively working to set an agenda for another year’s worth of effort...”

the importance of communicating uncertainty as well as vertical and horizontal accuracy; improving incentives for others to participate more actively in flood hazard identification and risk assessment efforts; noting ways to improve how investments in the program are managed – including the establishment of a “National Flood Hazard and Risk Management Coordination Committee” focused on ensuring flood hazard data for the nation is credible and current; and developing guidance and standards to improve how current and future flood hazards and risks can be quantified.

The TMACs work is not done and they are actively working to set an agenda for another year’s worth of effort which will include at a minimum a third report – offering additional recommendations and a technical review of FEMA’s national flood mapping program. The latter effort will inform the FEMA Administrator’s certification of a national flood mapping program that, when applied, results in technically credible flood hazard data in all areas where flood maps are prepared or updated. 



Other Important Information

Conferences

This listing is for information only and is not a complete list of FRM-related meetings. These meetings are not endorsed by the Corps of Engineers unless specifically stated. If we have failed to list a conference/meeting/symposium that would be of interest to the Flood Risk Management community, please forward the conference details to us.

10-14 January 2016 – **96th American Meteorological Society Annual Meeting** – New Orleans, LA – <https://ams.confex.com/ams/>

21-24 March 2016 – **National Hurricane Conference** – Orlando, FL - <http://hurricanemeeting.com/>

8-10 June 2016 – **3rd International Conference on Environmental and Economic Impact on Sustainable Development** – Valencia, Spain – http://www.wessex.ac.uk/16-conferences/environmental-impact-2016.html?utm_source=wit&utm_medium=email&utm_campaign=eid16cfp&uid=184019

19-24 June 2016 – **Association of State Floodplain Managers (ASFPM)** – Grand Rapids, MI – <http://www.floods.org/index.asp?menuID=223>

29 June – 1 July 2016 – **5th International Conference of Flood Risk Management and Response** – San Servolo, Venice, Italy - <http://www.wikicfp.com/cfp/servlet/event.showcfp?eventid=45833>

12-15 July 2016 – **River Flow 2016 – Eighth International Conference on Fluvial Hydraulics** – St. Louis, MO - <http://www.iihr.uiowa.edu/riverflow2016/>

17-21 October 2016 – **3rd European Conference on Flood Risk Management** – Lyon, France - <http://floodrisk2016.net/>

Good to Know

FRM Statements of Need: Submitting "Statement of Need" is the first step in the process of a concept becoming a requirement for research and development. If USACE District personnel have problems or situations they feel should be addressed by research, the Flood Risk Management Gateway, <http://operations.usace.army.mil/flood.cfm>, is the place to submit these research Statements of Need (SoNs).

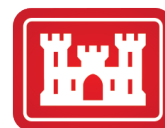
Past issues of this newsletter, various links, news items, and presentations, are all available on the Flood Risk Management Gateway, <http://operations.usace.army.mil/flood.cfm>. Check it out!

This newsletter is a product for and by the Flood Risk Management Community. The views and opinions expressed in this unofficial publication are not necessarily those of the U.S. Army Corps of Engineers or the Department of the Army.

If you would like to submit an article or an idea for an article for the next edition of the newsletter, or if you have any comments or questions about articles in this edition, please email Stephanie.N.Bray@usace.army.mil.



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Flood Risk Management Newsletter



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