Webinar: Fitting the Curve

#	Question	Answer
1	Does BestFit provide fitting of Peak Over Threshold as well as Annual Maxima series?	Version 1 just does block max. Version 2 will be able to do POT.
3	I want to better understand the maths/stats behind things. Can you please provide me with the original journal-article paper names for: the Bayesian Inference method, and also the GEV probability model.	The Generalized Extreme Value distribution belongs to a family of three-parameter distributions with a common parameterization scheme devised by Hosking and Wallis (Hosking & Wallis, 1997)
3	I want to better understand the maths/stats behind things. Can you please provide me with the original journal-article paper names for: the Bayesian Inference method, and also the GEV probability model.	The GEV distribution predates 1997, but Hosking and Wallis's parameterization is the most commonly-used scheme
3	I want to better understand the maths/stats behind things. Can you please provide me with the original journal-article paper names for: the Bayesian Inference method, and also the GEV probability model.	https://www.hec.usace.army.mil/confluence/sspdocs/sspum/latest/distribution-fitting-analysis/distribution-fitting-and-parameter-estimation#DistributionFittingandParameterEstimation-GeneralizedExtremeValueDistribution
4	Is not 1 in 100 year = 1% probability?	Yes, 1 in 100 is 1% annual probability
4	Is not 1 in 100 year = 1% probability?	Here's a good discussion about the equations behind converting between Average Recurrence Interval and Annual Exceedance Probability from one of our presenters: https://tonyladson.wordpress.com/2017/07/04/converting-between-ey-aep-and-ari/
6	whats is about Wakeby distribution,? will it be added next version?	
6	whats is about Wakeby distribution,? will it be added next version?	There will not be the Wakeby. But there will be the Kappa-4. If there is a demand, we can add an upper bounded distribution like Wakeby
7	What's the best way of comparing baysian simulations from different distributions? Export to spreadsheet?	You can toggle back and forth between tabs. Or you can export results to Excel, etc.
8	Hi, this software can use maximum likelihood method?	BestFit uses Bayes theorem to fit analytical distributions to input data, which is similar to MLE.
9	Would you provide more explanations on MCMC - really appreciate if some references could be provided?	Bayesian MCMC flood frequency analysis with historical information: DS Reis Jr, JR Stedinger - Journal of hydrology, 2005
10	can I estimate the parameters of distribution using l-moments method?	BestFit uses Bayes Theorem to fit distributions to input data. If you're interested in using linear moments (L-moments), HEC-SSP allows users to fit distributions using method of moments, L-moments, and/or maximum likelihood estimation (MLE)
11	whats is the differencebtween RMC and HEC-SSP?	live answered
12	Can RMC-BestFit be applied for AEP analysis of water elevations from lakes or reservoir monitoring programs?	You can apply it to any data type. However, water elevations are typically discontinuous (spillways, floodways, etc). So it is better to simulate with a stochastic flood model, such as RORB, SEFM, or RMC-RFA.
13	can RMC make regionalizaion of multiple sites?	Version 1 and 2 are just single site. But if there is a demand, we can add a multi-site analysis
14	Global warming will increase size of events compared to historic events. How do future events influenced by global warming be incorporated in the analyses?	Currently, we can model these effects with trends in the parameters. But a lot of research ongoing
15	The model averaging and joint probability features in version 2 seem interesting. When will version 2 be available for download ?	Yes, hopefully early 2023
16	In RMC: How would you incorporate mutiple rainfall-runoff studies of the same area into the priors? If studies conflict, would the discrepancy be represented in the standard deviation parameter?	

Webinar: Fitting the Curve

#	Question	Answer
17	Couple of questions. 1. Can you perform a batch analysis? 2. In developing countries, the main rainfall data is from satellite data. Would you have any suggestions? 3. Have you tried incorporating the data with regional frequency analysis L-Moment. Thanks	
18	The joint extreme distribution is quite tricky, since it is a contour line at a certain return period. I wonder how BestFit tackle this? Thanks!	The copula analysis in Version 2 will just be bivariate Archimedian and Gaussian. In these cases, the math is much more tractable. If there is a demand for multi-site, we will consider adding it.
18	The joint extreme distribution is quite tricky, since it is a contour line at a certain return period. I wonder how BestFit tackle this? Thanks!	Thanks! Copula is very powerful in the joint extreme conditions analysis.
19	How do you seperate the effects of urbanization and climate change?	
20	Does the software provide the Bayes Factor as a goodness of fit statistic when comparing the fit to different distributions	
21	What is the difference between estimate quantiles and average quantiles in EVA?	
22	Thanks Krey. It shows 63% AE Probability = 1yr ARI, not really 100yr. Maybe it was a typo in your presentation.	I believe Krey's graph was showing there will be a 63% chance of a 1% AEP event occuring during 100 years.
23	It seems to me that the most critical unknown is the baseline change over time. With 7% more moisture in the atmosphere and not knowing what this actually translates to, which could be a change in rainfall intensity of double that, how do we have any confidence when that could mean a 1 in 10,000 year event becomes a 1 in 100 year event. How do we know when an outlier might become the norm	I agree with Steve, plus I also have the question that does a 1 in 100 yr event has the same sensitivity to cliame change compared with a 1 in 10 yr event?
23	It seems to me that the most critical unknown is the baseline change over time. With 7% more moisture in the atmosphere and not knowing what this actually translates to, which could be a change in rainfall intensity of double that, how do we have any confidence when that could mean a 1 in 10,000 year event becomes a 1 in 100 year event. How do we know when an outlier might become the norm	This is a great question that hits at the challenges of modeling climate change. Best practice is to test for a trend. Compare models for trends against the stationary case. Only model the trends if it leads to a better model (better AIC, BIC, etc). A lot of engineering judgment is required. So I envision most using the nonstationary FFA as a sensitivity for resiliency in the design
24	For IDF curves, how do I find more info on different fitting methods? I'm using GEV, but I'd think to better understand how this compares with Gumbel or other common distributions.	
25	In Australia we know about climate drivers like El Nino, ENSO and SOI. Has anyone taken the position of these indicators in flodo analysis?	In Australia we know about climate drivers like El Nino, ENSO and SOI. Has anyone taken the position of these indicators in flodo analysis?
26	When you look at model uncertainty using different fitting methods, how do you quantify/describe the uncertainty?	This is in respect to HEC-SSP.
26	When you look at model uncertainty using different fitting methods, how do you quantify/describe the uncertainty?	Good question. Check out the Parametric Modeling lectures and workshops shown here: https://www.hec.usace.army.mil/confluence/sspdocs/ssptr/flood-frequency-analysis-may-2022.
26	When you look at model uncertainty using different fitting methods, how do you quantify/describe the uncertainty?	Great, thank you for this!
26	When you look at model uncertainty using different fitting methods, how do you quantify/describe the uncertainty?	I'm getting a 404 error when trying to open the link.
27	Could you please explain the difference in HEC	Could you please explain the difference in HEC
28	Maybe, thanks.	
29	How do you translate a guaged catchment to an unguaged catchment?	
30	HEC-SSP and PeakFQ	HEC-SSP and PeakFQ
31	Hi I was wondering if Haden could provide a quick demo of incorporating paleo flood information in best fit?	live answered

Webinar: Fitting the Curve

#	Question	Answer
32	In terms of visualisation, can we export the data to Microsoft Power BI from the software?	
33	Some of what I am asking is being answered but can we not use guesses at what global temperature rise might be be, match those with what that means with atomspheric moisture and then further guess what that means to event intensity	
34	Thank you for your very interesting presentation. I am wondering if a new user should start learning HEC-SSP or BestFit? Which one gives more comprehensive coverage?	Thank you for your very interesting presentation. I am wondering if a new user should start learning HEC-SSP or BestFit? Which one gives more comprehensive coverage?
34	Thank you for your very interesting presentation. I am wondering if a new user should start learning HEC-SSP or BestFit? Which one gives more comprehensive coverage?	live answered
35	I know this runs only on windows. Will you ever develop a version for LInux or mac?	
36	Cau be used HEC-SSP in flood frequently analysis for any hydrological river basin with Bulletin C17 or b ?	Can used HEC-SSP outside US water regime Bulletins C or B 17 for example in Tigris or Nile river? or there are another solution for using HEC-SSP With other Rivers outside US?
36	Cau be used HEC-SSP in flood frequently analysis for any hydrological river basin with Bulletin C17 or b ?	Yes. You can utilize HEC-SSP for locations outside of the United States. Bulletin 17C, which is Federal flood frequency guidance within the U.S., is available for use w/in HEC-SSP. However, we do allow for the use of other parametric (and non-parametric modeling) techniques.
37	Can FLIKE handle rainfall-runoff (i.e. 0.2% AEP) prior information? In the example shown for RMC, how were the mean and standard deviation for this point selected?	FLIKE cannot incorporate the AEP priors. The mean and standard deviation come from a stochastic rainfall runoff model. These can be derived from RORB, etc.
37	Can FLIKE handle rainfall-runoff (i.e. 0.2% AEP) prior information? In the example shown for RMC, how were the mean and standard deviation for this point selected?	Thanks Haden
38	Practitioners are extending flow gauge records for FFA using nearby rainfall gauges with longer records. Can this technique be added to BestFit?	Practitioners are extending flow gauge records for FFA using nearby rainfall gauges with longer records. Can this technique be added to BestFit?
39	When data is too old in non stationary world?	
40	How accurate is paleo-flood analysis?	How accurate is paleo-flood analysis?