201801 - Flooding - Seine

Status: Finalised Material from: Linus

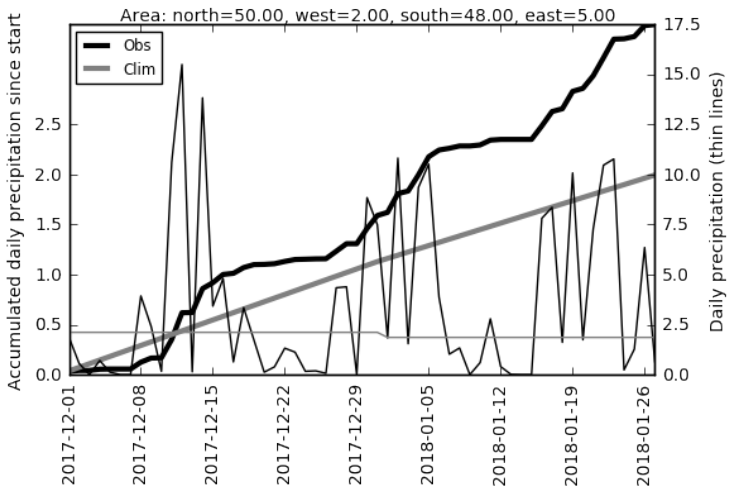
1. Impact

During the last weekend of January River Seine flooded in Paris, with a level of 5.8 metres (June 2016 peaked on 6.1 m).

http://www.bbc.co.uk/news/world-europe-42856634

2. Description of the event

The plot below shows the accumulated precipitation from 1 December 2017 aggregated from ~15 stations upstream Paris (in the box 48-50N, 2-5E). Te region experienced three wet periods, where the last one happened between 16-23 January.



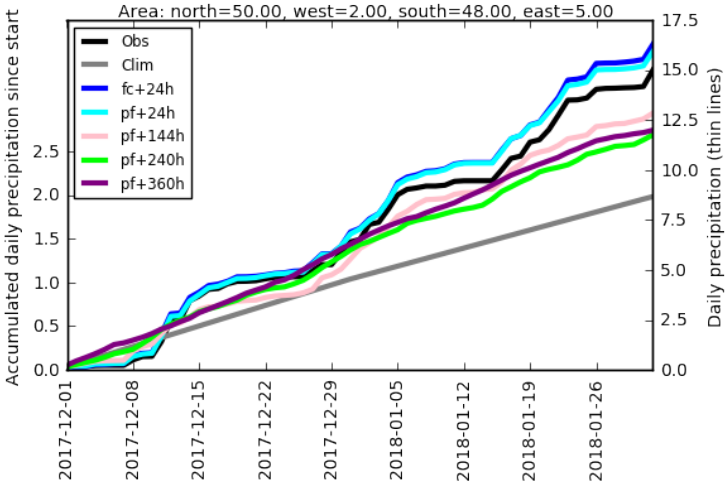
3. Predictability

3.1 Data assimilation

3.2 HRES

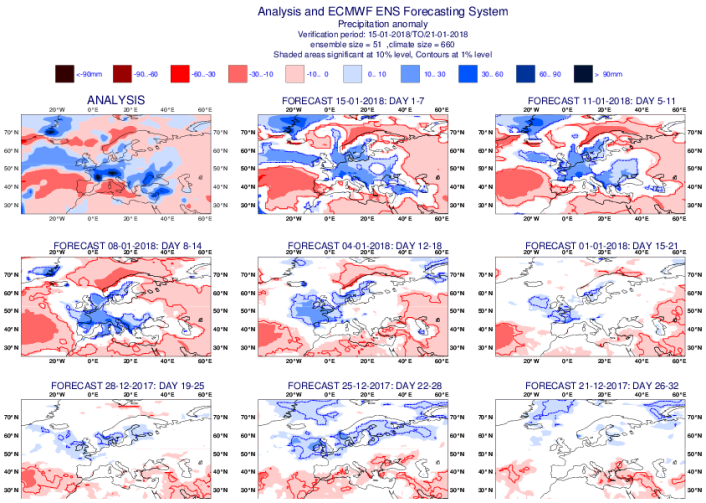
3.3 ENS

The plot below shows the accumulated precipitation from 1 December 2017 aggregated from ~15 stations upstream Paris (in the box 48-50N, 2-5E), from observations (black) and ensemble mean forecasts with different lead times. The accumulation from climatology is shown is grey. Also the longest lead time (15-day forecasts) captured half of the observed wet anomaly. The information missing in this plot is whether the model on this lead time has a bias and optimally the plot should include the accumulation from the model climate as well.

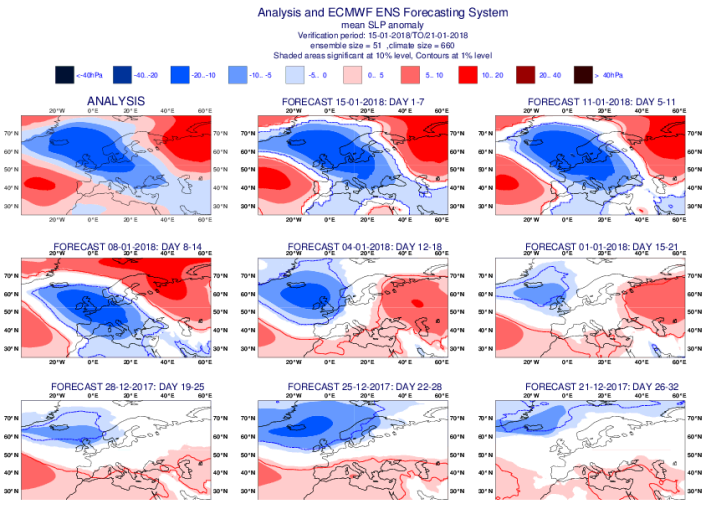


3.4 Monthly forecasts

The figure below shows the analysed weekly precipitation 15-22 January (first panel) and weekly means from monthly forecasts.



The next plot shows the same as above but for MSLP.



3.5 Comparison with other centres

3.6 EFAS

The plots below show EFAS forecasts for a point on Seine in Paris, starting from the last forecast. The risk of exceed 20 year return period (purple band) was well captured from 17 January.

Point Information

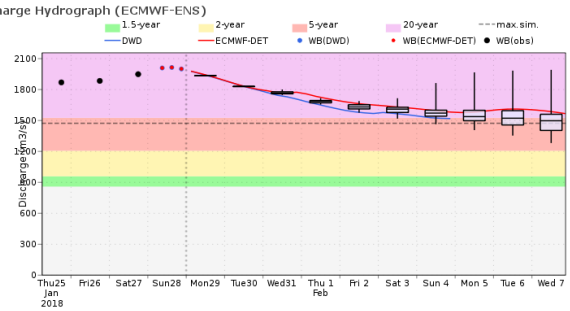
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	17	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-29 00:00	100		2018-01-29 00:00 + 0 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

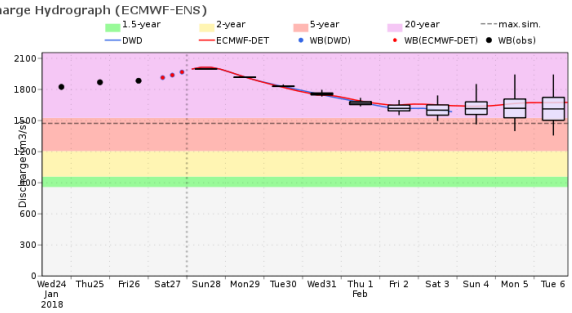
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	18	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-28 00:00	100		2018-01-28 00:00 + 1 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Report an error

Point Information

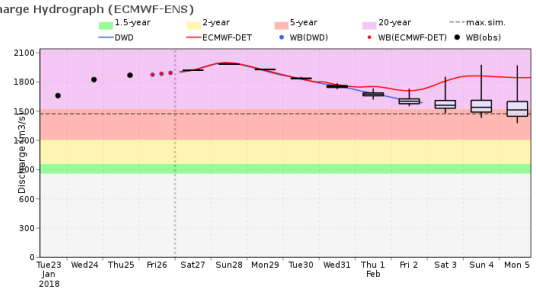
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	21	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-27 00:00	100		2018-01-27 00:00 + 2 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

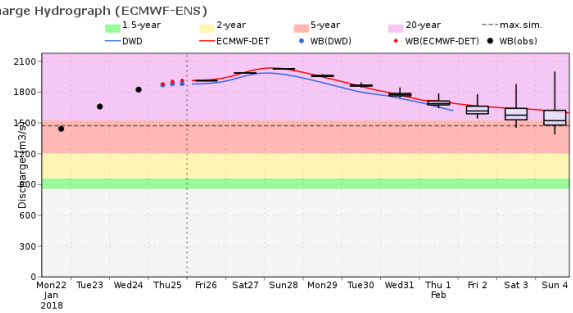
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	23	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-26 00:00	100		2018-01-26 00:00 + 2 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

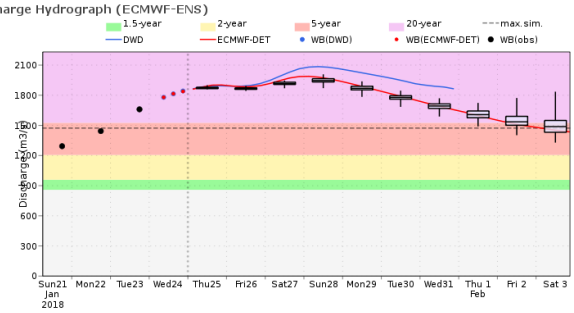
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	32	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-25 00:00	100		2018-01-25 00:00 + 4 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

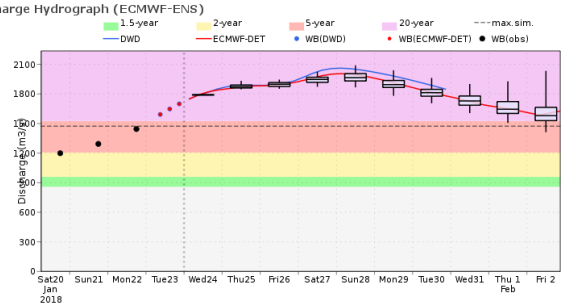
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	37	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-24 00:00	100		2018-01-24 00:00 + 4 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

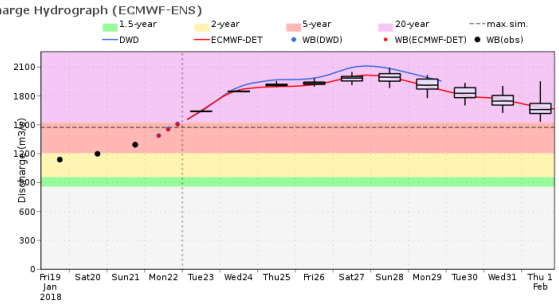
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	41	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-23 00:00	100		2018-01-23 00:00 + 5 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

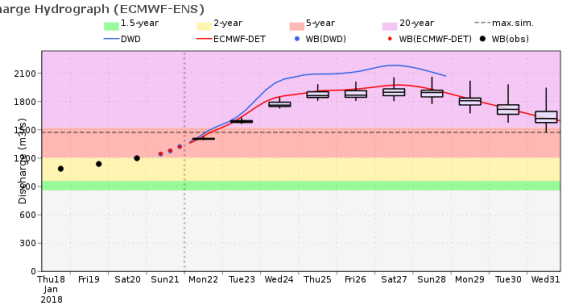
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	45	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-22 00:00	100		2018-01-22 00:00 + 6 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

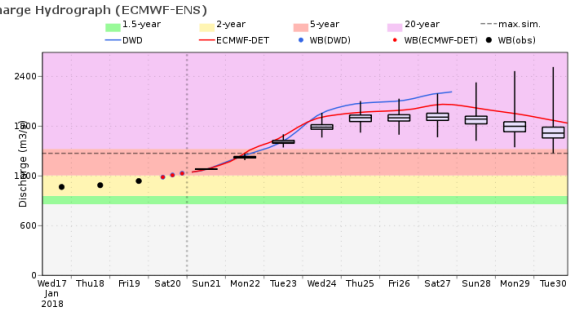
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	52	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-21 00:00	100		2018-01-21 00:00 + 7 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

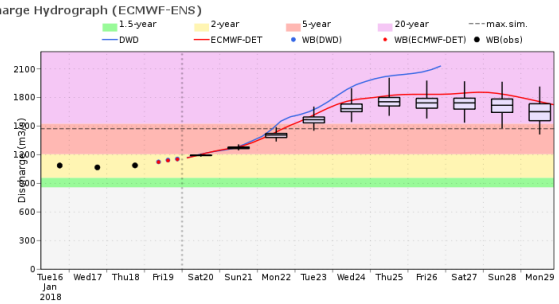
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	55	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-20 00:00	100		2018-01-20 00:00 + 7 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

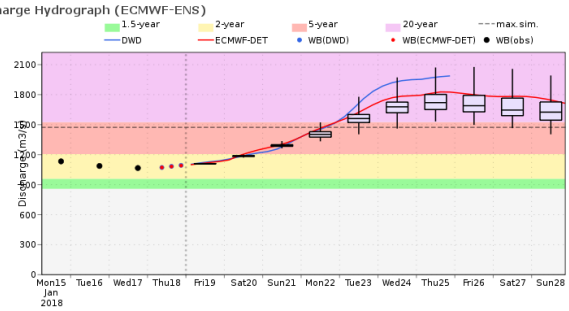
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	55	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-19 00:00	100		2018-01-19 00:00 + 7 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

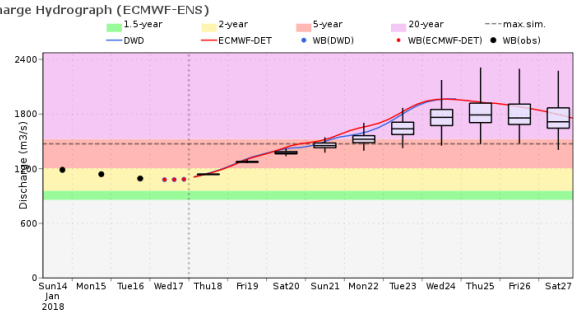
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	52	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-18 00:00	100		2018-01-18 00:00 + 7 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

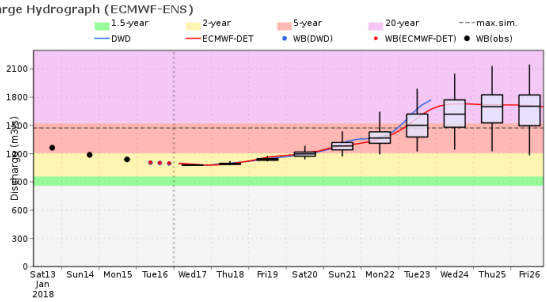
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	46	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-17 00:00	100		2018-01-17 00:00 + 7 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

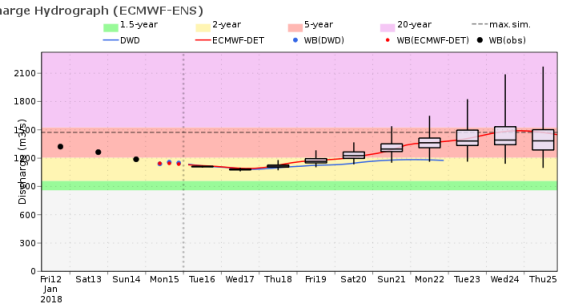
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	30	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-16 00:00	81		2018-01-16 00:00 + 9 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



Point Information

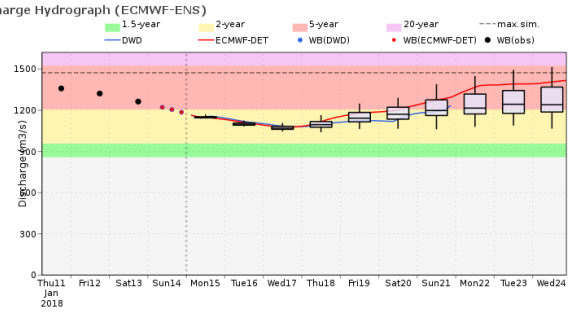
	Country	CoA Status	Basin	River	Upstream Area [km2]	PointID	Lat [Deg]	Long [Deg]
Point Forecast	France	YES	Risle,Seine	Seine	43,850	14	48.83	2.27

Point Forecast

	Forecast Date	Probability value	Probability tendency	Peak forecasted in:
Point Forecast	2018-01-15 00:00	79		2018-01-15 00:00 + 10 days

>>Open/Close EFAS Forecast images

Discharge Hydrograph (ECMWF-ENS)



4. Experience from general performance/other cases

- 201606 - Flooding - France

5. Good and bad aspects of the forecasts for the event

6. Additional material