

SPECIAL FOCUS – December 2018

2018 spring-summer drought in Afghanistan

An area extending from the west (Hirat, Badghis, Faryab provinces) of Afghanistan to the countries' northern border (Jawzjan, Balkh, Sar-e-Pul, Baghlan) experienced a serious drought that started in winter-spring and protracted till summer, according to ASAP (Figure 1).

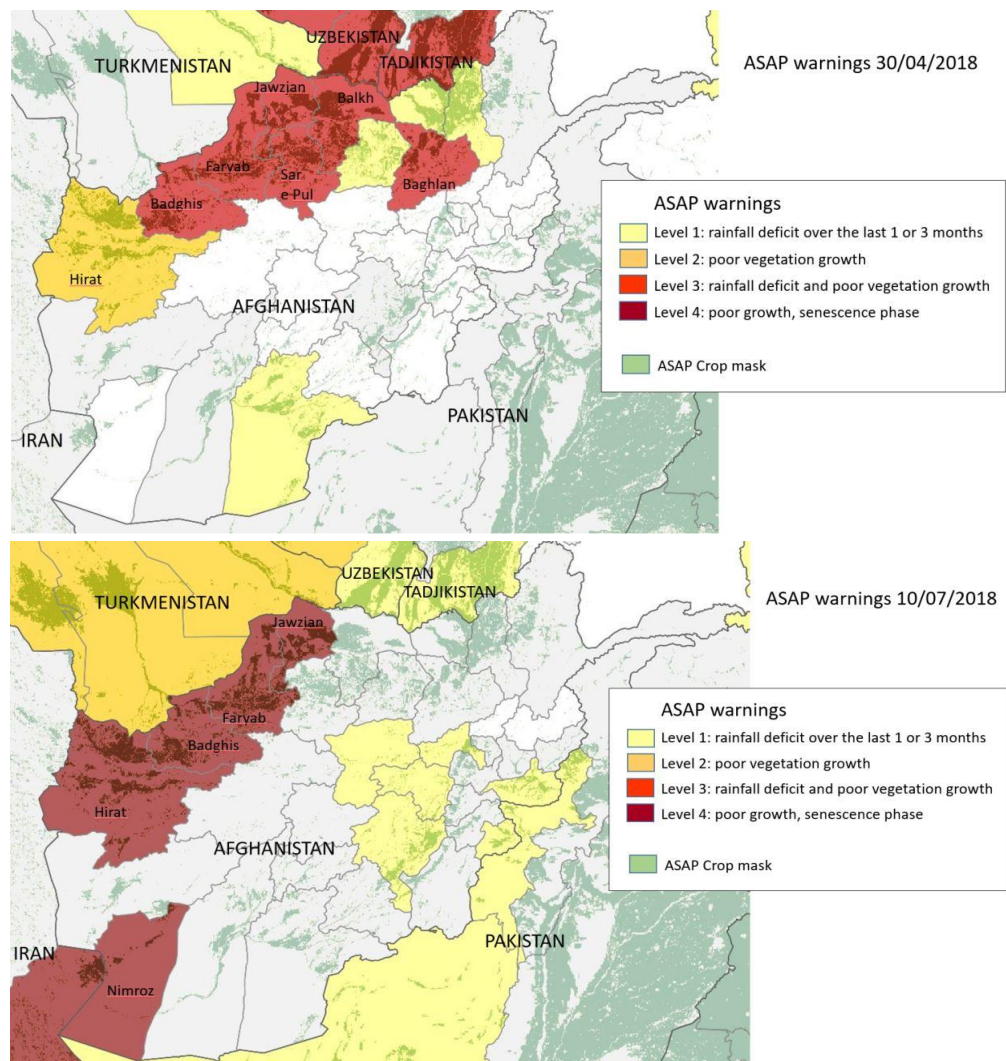


Figure 1. Main provinces affected by the 2018 drought according to ASAP on 30 April 2018 (top) and 10 July 2018 (bottom).

This drought decreased the production of rain-fed cereals, mainly wheat, which is by far the main crop with 4.8 million tons produced on average over the last 5 years out of a total cereal production of 6.2 million tons.

According to the GEOGLAM Crop Monitor Early Warning bulletin No. 32 of October 2018 quoting an unpublished national report, the “rain-fed wheat production as a whole, was estimated to be about one third of last year’s harvest and major cropping areas in Herat, Badghis, Faryab, and Sari-e-Pul (very western portion of the northern mountains and foothills region) sustained the most damage” (cf. www.cropmonitor.org).

The impact of the drought on biomass levels is clearly visible on the MODIS 1km NDVI profiles (Figure 2).

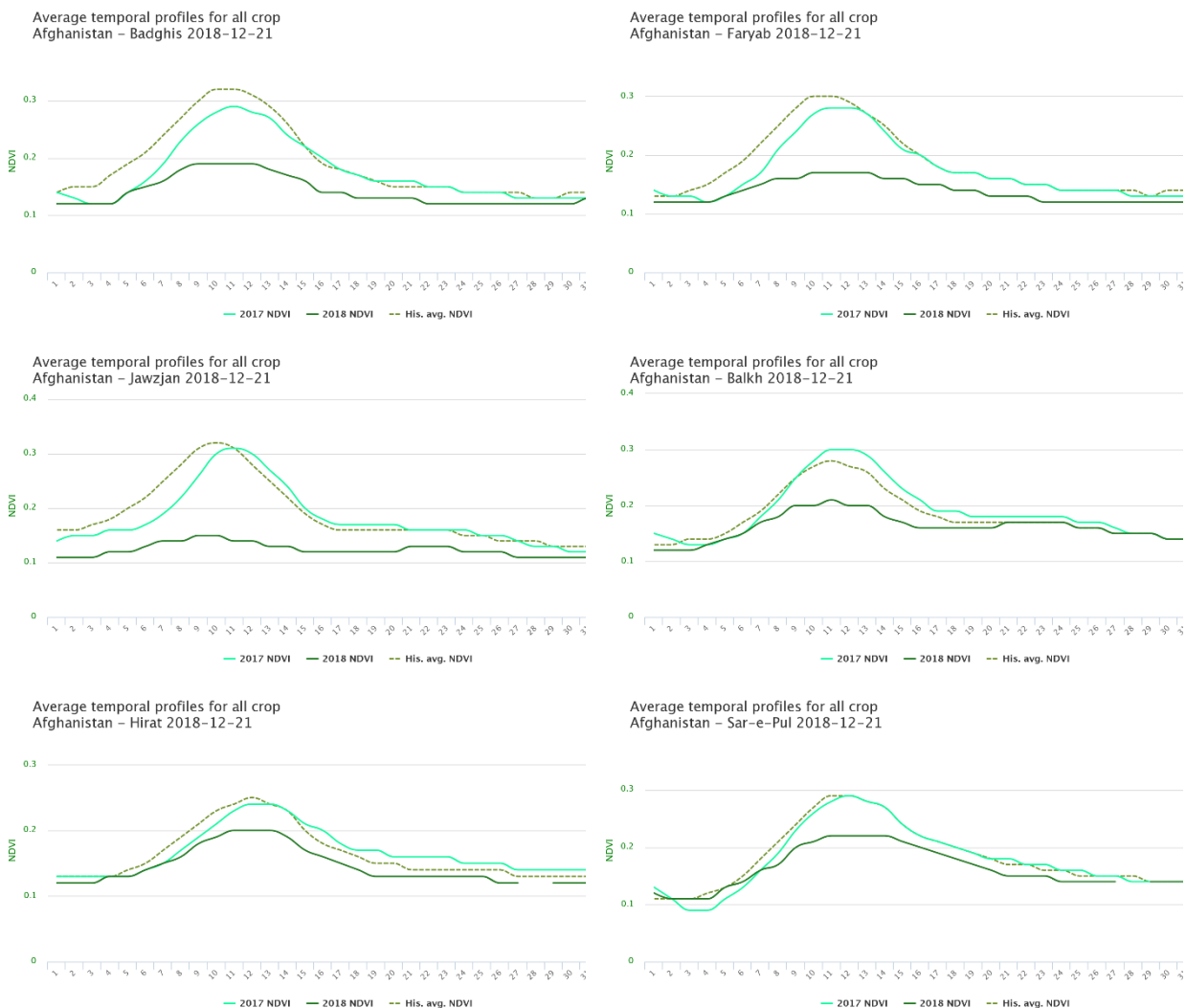


Figure 2. MODIS NDVI profiles of 2018, 2017 and 2002-2017 average for the north-western provinces of Badghis, Faryab, Jawzjan, Balkh, Hirat and Sar-e-Pul. Clearly 2018 NDVI is well below the average and the 2017 NDVI values in spring (March to May, i.e. dekads 7 to 15) and also in summer (July to September) in most provinces.

The impact is also visible on the selection of Sentinel 2 (and Landsat 8) high resolution imagery in Figure 3 for Balkh, Figure 4 for Faryab and Figure 5 for Jawzjan.

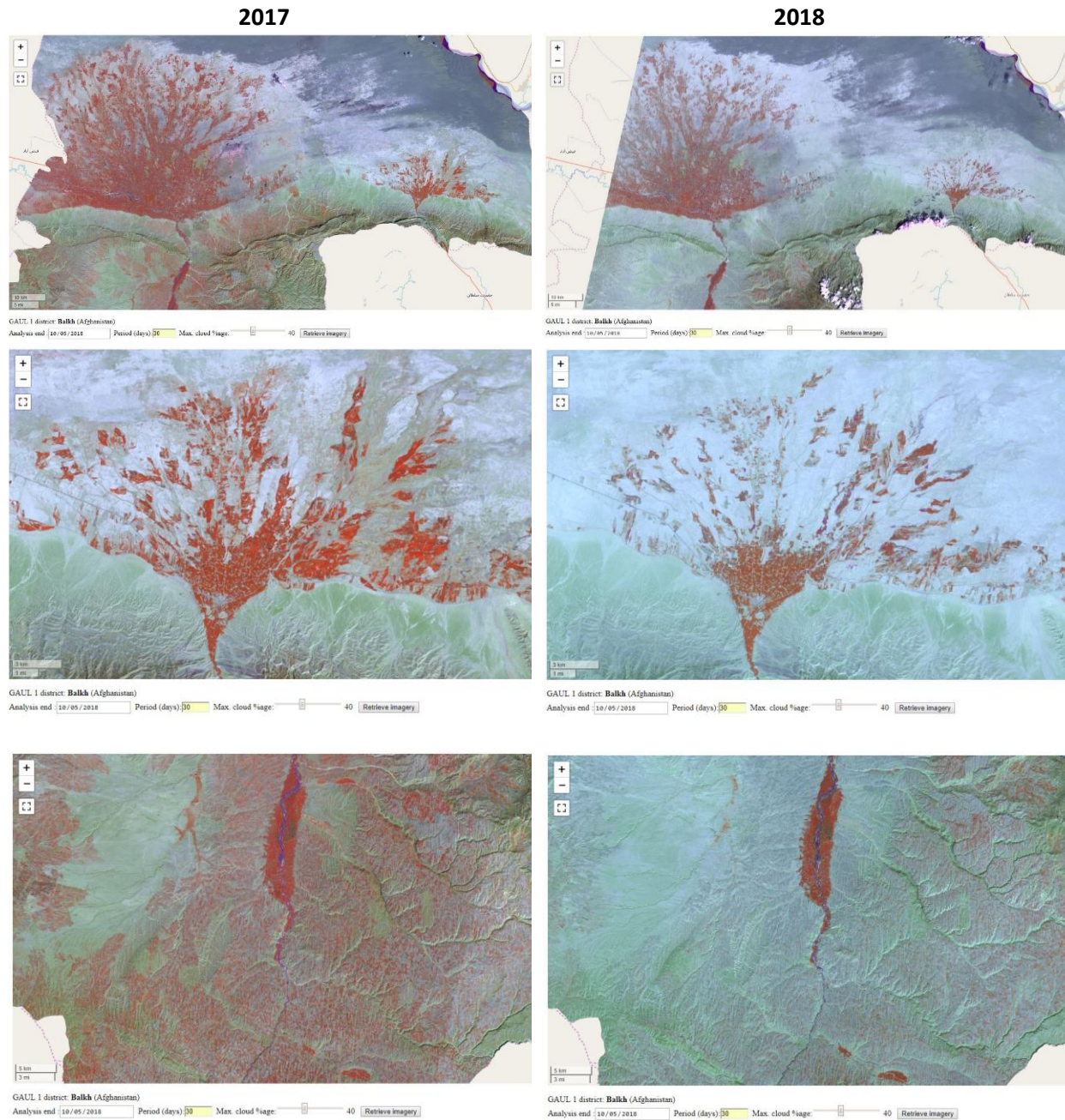


Figure 3. Sentinel 2 and Landsat 8 imagery for Balkh taken over spring (11/04 – 10/05) 2017 (left) and 2018 (right) showing a drop in the number of green fields in April 2018 (middle right) versus April 2017 (middle left). The two bottom images show irrigated crops in the center of the image along the Sholgar river and rain-fed crops or pastures in the surrounding hills: clearly biomass was strongly reduced in 2018 in rain-fed areas as a result of the spring drought.

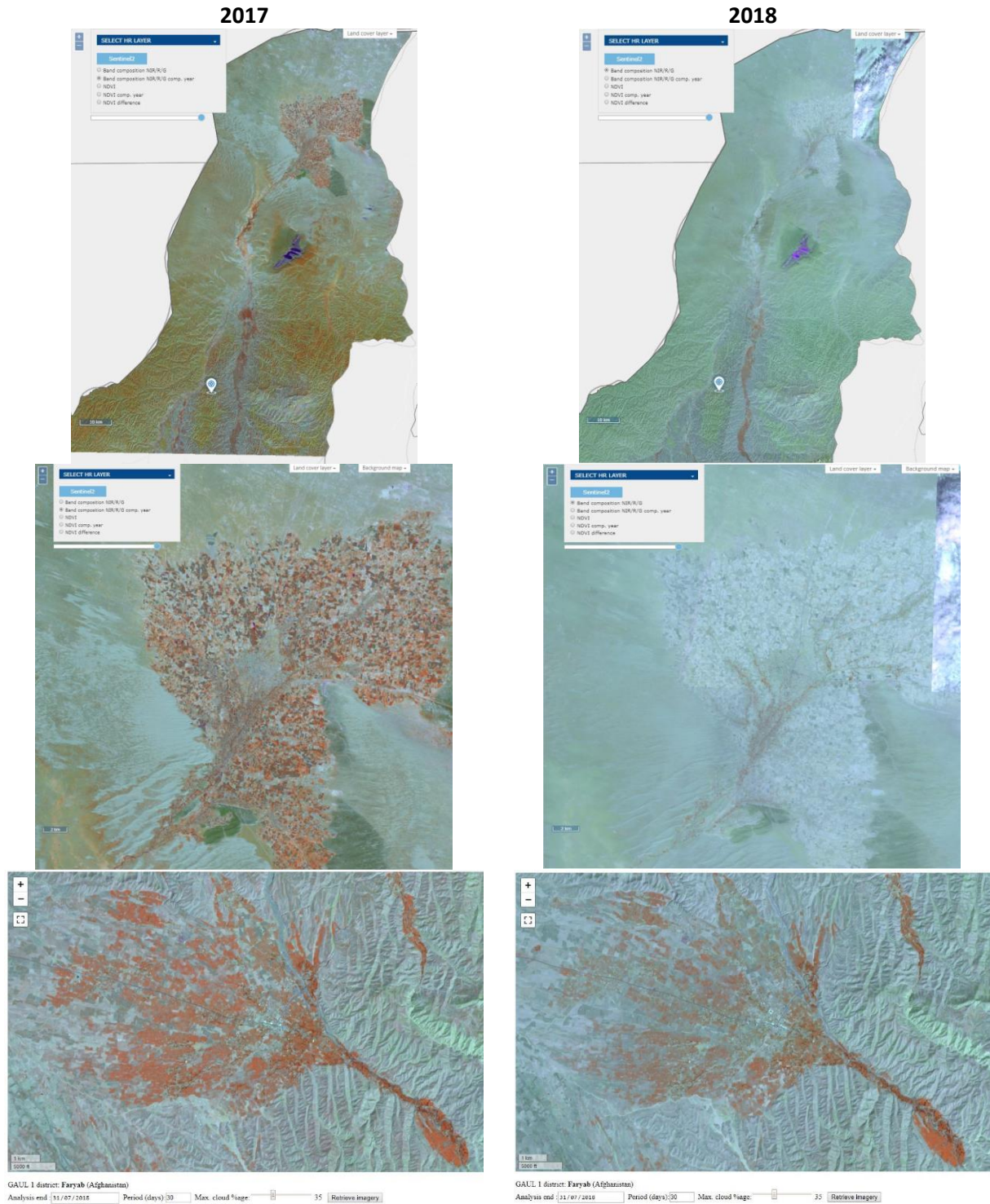


Figure 4. Sentinel 2 imagery for Faryab taken over spring (11/04 – 10/05) 2017 (top and middle left) and 2018 (top and middle right), and over July 2017 (bottom left) and July 2018 (bottom right). The biomass reduction in 2018 with respect to 2017 is drastic in spring but also visible in summer. These Sentinel 2 images confirm the MODIS NDVI signal.

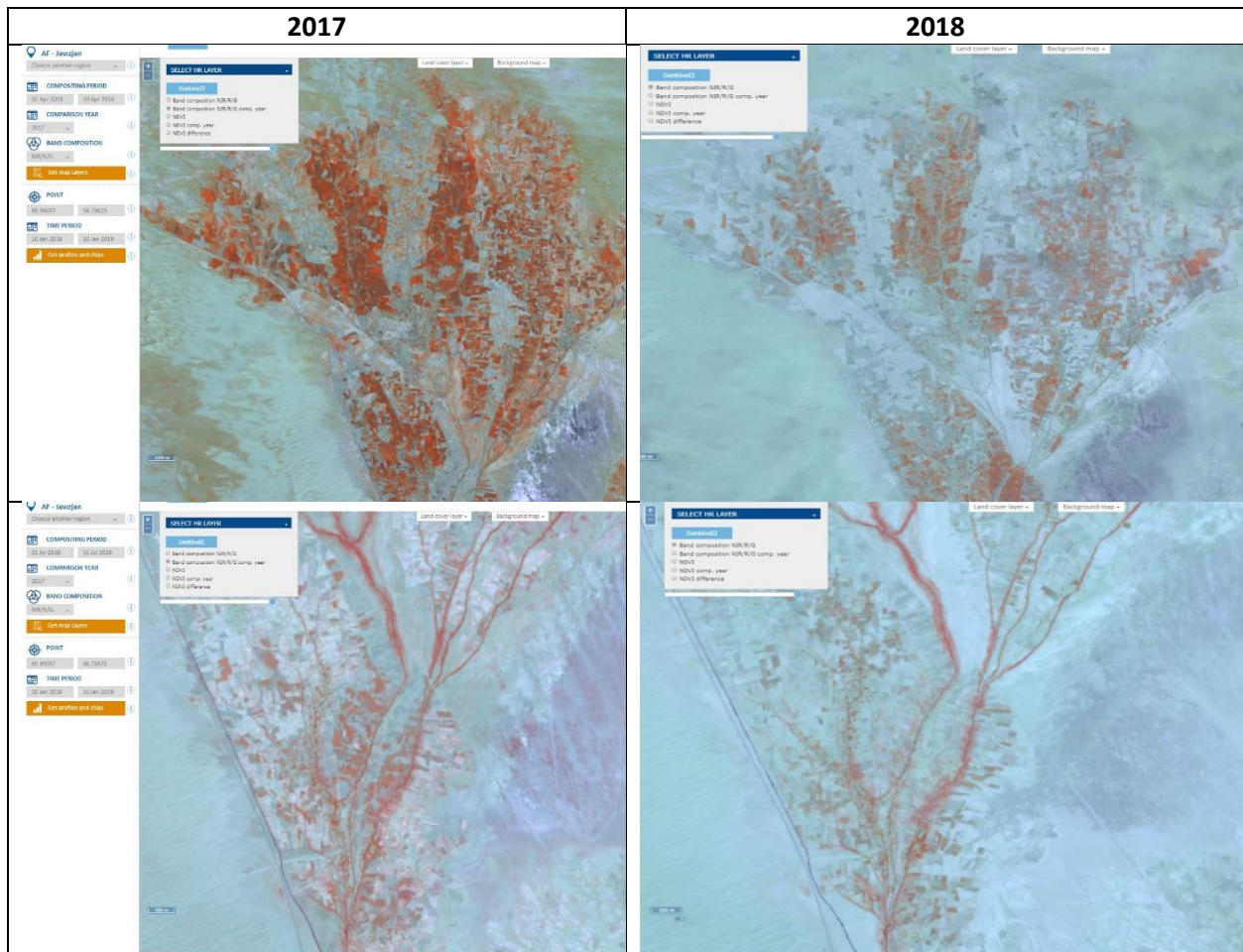


Figure 5. Sentinel 2 imagery for Jawzjan of April 2017 (top left) and 2018 (top right) showing the effect of the 2018 spring drought on cereals. The two bottom images of July 2017 (bottom left) and 2018 (bottom right) also show less green fields in summer 2018.

For any feedback and questions please write to the address below.

Feedback can also be posted on Twitter by including the hashtag: #asapEU

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