**Session 4: Interpreting TAMSAT-ALERT Forecasts - Transcript**

Slide 1:

Hello everyone and welcome to session 4 of the TAMSAT-ALERT training course.

Slide 2:

This session begins with an activity. If you haven’t done so already, please pause this presentation whilst you complete questions 1 through 11 on the worksheet provided. Once you have completed these questions, you should listen through the rest of this presentation. This will take you through the figures you examined on the worksheet and highlight things for you to consider. Once you have finished listening to this presentation, you should return to the worksheet and finish the remaining questions.

Slide 3:

This session aims to address the fourth learning objective of the course. After this session you should feel confident in interpreting TAMSAT-ALERT soil moisture forecasts.

Slide 4:

You were asked the worksheet to interpret figure 1 and to consider how this information might inform decision-making in your own role. Figure one shows the forecast mean seasonal soil moisture anomaly for MAM 2020. The anomaly is presented as the percent of average soil moisture observed in the climatology. The forecast was issued on 30th March 2020.

The first thing to say about figure 1 is that the blue colours across Kenya indicate that soil moisture is predicted to be above average across the country. However, you should note that the soil moisture anomaly is not expected to be uniform everywhere. Indeed, we see darker blues in the south-central region indicating that this area will experience substantially enhance soil moisture conditions. In west and northeast Kenya, the pale blue colours indicate that soil moisture will be close to average or only slightly enhanced above average conditions. It is important to consider spatial variation in forecasts because rainfall and therefore soil moisture are incredibly variable in space, which means droughts are likely to be experienced in localised regions and not uniformly across a country.

You should also note that this forecast was issued on the 30th March 2020. This means there are still 2 months left of the MAM season and so there is still much uncertainty in future weather conditions and thus the seasonal forecast.

Your responses regarding how you might use this information in your own role will vary depending on you remit. However, it should be noted that whilst figure 1 indicates that soil moisture will be above average and so crop or pasture growth is unlikely to be affected by drought, water logging and flooding could still cause damage to vegetation and potentially cause food insecurity.

Slide 5:

Figure 2 shows the time series of soil moisture from the 1st January to the end of May for all years in the historic dataset (1983-2020). This year 2020 is highlighted in black and 1998 is highlighted in red.

When comparing 2020 to other years, we can see that throughout the time series, it is generally above most other years, indicating that 2020 has higher soil moisture than average. 1998 was included here as a comparison, because both MAM 2020 and MAM 1998 followed exceptionally heavy rains in the preceeding OND season. We can see that 1998 had the highest soil moisture on record throughout January and February, but early heavy rainfall during Febraury 2020 meant 2020 soil moisture exceeded 1998 going into the MAM season.

In contrast the Figure 1, Figure 2 does not give any spatial information, rather, soil moisture conditions are averaged across Kenya and presented here.

Slide 6:

Figure 3 shows the probability of (A) lower-tercile or below normal soil moisture and (B) the probability of mid-tercile or normal soil moisture. This forecast was again issued on 30th March 2020.

Based on figure 3, we can conclude that there is generally a very low probability of experiencing lower-tercile soil moisture for most of Kenya. We can also see that there is a low probability of mid-tercile soil moisture. This suggests that most of Kenya is expected to received upper-tercile or above normal soil moisture in MAM 2020.

However, we must be aware that there is variation in this across Kenya. Whilst in the south-central region there is zero probability of lower or mid tercile soil moisture, there remains some possibility of mid-tercile soil moisture for the northern half of the country and even a possibility that some regions in the north west will experience lower-tercile soil moisture. Again, this spatial variation is important to consider because it will impact the targeting of resources and early action.

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Figure 4 shows the same information as figure 3 but is averaged across Kenya. It shows the probability distribution of soil moisture in the climatology (the black bars) compared to the probability distribution of soil moisture in the forecast (grey bars). The red vertical lines show the 33rd and 67th percentile, or the boundaries between the terciles.

From figure 4 we can see there that is only a small probability that soil moisture will fall below the 33rd percentile but that a large proportion of the probability density falls above the 67th percentile. This indicates a low likelihood of lower-tercile soil moisture and a high likelihood of upper tercile soil moisture across Kenya in 2020’s MAM season.

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When considering figure 1-4 together, it seems likely that Kenya will experience enhanced soil moisture during the 2020 MAM season. However, figures 1 and 3 show us that there is some spatial variation in this and that whilst it is highly likely that the south-central region will experience above normal soil moisture, parts of the north and west are less certain. It is also important to remember that this forecast was made fairly early in the season, so that 2 months still remain before the end of May. This, combined with our understanding of the skill of TAMSAT-ALERT forecasts from session 2, means there is still some uncertainty in the forecast.

When considering the forecast in terms of impacts, whilst the likelihood of drought is low, water logging of soils and flooding still have the potential to negatively impacts crop and pasture production, and in turn affect lives and livelihoods.

Slide 9:

Now that you have listened to this presentation, you should return to the worksheet and complete the remaining questions. These questions will ask you to reflect and amend your answers to question 1-11 based on the information covered in the presentation.

As always, if you have any questions about this session, you can talk to us during the end-of-week clinic from 10 – 11:30am on Friday 22nd May. Alternatively, drop me an email at v.l.boult@reading.ac.uk.

In the next session, you will be producing your own TAMSAT-ALERT forecasts. Until then, bye.