Slide 1: Dear students and farmers, in this class we like to discuss on simple methods of verification of weather forecasts with real event, comparing the weather forecast and the real event, are through science tours. This is very-very important. You may ask a question why the verification is necessary, just to get the forecast, we prepare agro advisories and communicate to the farmers. But even then verification is necessary for two things. To improve the methodology being adopted presently synoptic scale or planetary scale or numerical weather prediction model or regional climatic model, are they suitable to our condition. So for remembering the methodology, the validation or verification of the weather forecast is totally required. Furthermore to develop confidence of the farmers and the weather forecast to be issued by us, so considering these, the validation and the verifications are totally required. As I told earlier, the weather forecast is not being developed by us, it is by people of different organization using so many different higher resolution models by using better computers. Similarly the validation also can be done by us or by some institution to indicate the worthiness of the weather forecast being given to our farmers. This we will be discussing today.

Slide 2: Now there are different tools are available, statistical tools, symbol tools are available to compare or verify the forecasted value and also the actual events occurred. This is a very-very important. For example tomorrow I predict or foretell or forecast rainfall of 10 millimeter, in quantity wise, so after the arrival of the tomorrow, than the day concerned, whether the rainfall is received or not, suppose therefore predicted value is a 10 the actual value is 0 like that we enumerate so many document data and verify through so many tools and one among them is your ratio score or hit score. This is a simple tool, very-very simple tool. Here the forecast accuracy is being indicated by ACCC this is the ACC there. This is the… your ratio score, hit score. So here I have given a pair of alphabets, pair of alphabets. First letter in the pair is forecasted when rainfall is 10 millimeter and the second letter is the events occurred here. Suppose 10 mm Y. This is Y 0, so plus. Here N means, I have given no, here Y is equal to yes yes, that is a predicted 10 millimeter, events occurred at 10 millimeter, predicted no protection no event. So like that is the combination different permutation combination occurs. So this equation or tool can be utilized properly whether to find out the accuracy of the weather forecast being given. See normally the agro advisory is being prepared by the agricultural specialist. They must know, whether they prefer the agro advisories for a particular précised weather forecast or better weather forecast, for that, this tool can be employed.

Slide 3: And another tool is height S score, skill score, this is another skill score, this is tool number 2. This seems to be a cumbersome. It may get confused to you, but don't worry, but a simple toll. I have given the legend here, that is equal to the number of correct predictions of the no rain, neither predicted, nor observed. Here F is equal to the false alarm studies, the

wrong predictions, predicted, but not observed, wrong predictions. So everything is given clear. By using this score you can be able to assess the worthiness of the forecast, being used for repairing your agro advisories. Then the third one is your correlation and the correlation coefficient. This is very simple, in every software you can find out this type of analysis, between predicted and observed. So we make a correlation. However, the correlation means it proves the relationship between the two things that is your predicted and observed. When you take the intensity of the relationship, then we go for the regression analysis, but here simple correlation means the association between the two pair data, one is predicted and another one is observed. But here the condition is a minimum of 30 pairs are required to get analyzed, otherwise, you may get wrong result or erroneous result. The correlation value goes from 0.1 to 1. Whenever, the value is 0.9 means you are having better accuracy of the weather forecast, when the value is 0.2, it is less valued forecast, like that you have to interpret. And the fourth one also can be used by different people, root mean square error RMSE. This is a simple tool being used. Anybody can use it. So for anything, it means, RMSE means, here I have given the equation, this is summation of your forecast that occurred, and the square value and the square, and everything was given. Very simple, if you do it by manually, it can be done, by statistical also, it can be analyzed, by computer software also, it can be acknowledged, but for everything this analysis must be done at least for a season, which is very important for particular cropping system or for a particular crop management activities, otherwise, it is very difficult to use the weather forecast to be obtained from the weather development and generating institutions. So with this I like to say that the validation of the weather forecast result is very-very important. It must be verified, otherwise in the long run, you may end with the wrong result or no result, no outcome will come. No output will come. So weather validity, weather forecast validation is most important to be done by us. Thank you very much.