GLOBAL PRECIPITATION EVALUATION

Yuejian Zhu
EMC/NCEP

	Observed Yes	Observed No
Forecast Yes	**Hit (h)**	**False Alarm (f)**
Forecast No	**Miss (m)**	**Correct Reject (c)**

$$FBI = \frac{(h+f)}{(h+m)}$$

$$ETS = \frac{h - R(a)}{(h+f+m-R(a))}$$

$$R(a) = \frac{(h+f).(h+m)}{(h+f+m+c)}$$

$$TSS = \frac{h.c - f.m}{(h+m).(f+c)} = \frac{h}{h+m} - \frac{f}{f+c}$$

FBI: Frequency Bias
ETS: Equitable Threat Score
Where R(a) is randomly forecasting rate
TSS: True Skill Statistics or Hanssen-Kuipers Discriminant