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**英文题目: Evaluation of TIGGE Daily Accumulated Precipitation Forecasts over the Qu River Basin, China**

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**英文摘要:** Quantitative precipitation forecasts (QPFs) provided by three operational global ensemble prediction systems (EPSs) from the THORPEX Interactive Grand Global Ensemble (TIGGE) archive were evaluated over the Qu river basin, China during the plum rain and typhoon seasons in the time period 2009–2013. Two post-processing methods, the ensemble model output statistics based on censored shifted gamma distribution (CSGD-EMOS) and quantile mapping (QM), were used to reduce bias and to improve the QPFs. The results were evaluated using three incremental precipitation thresholds and multiple verification metrics. It is demonstrated that QPFs from the National Centers for Environmental Prediction (NCEP) and the European Centre for Medium-Range Weather Forecasts (ECMWF) presented similarly skillful forecasts, although the ECMWF QPFs performed more satisfactorily in the typhoon season and the NCEP QPFs were better in the plum rain season. Most of the verification metrics showed evident seasonal discriminations, with more satisfactory behavior in the plum rain season. Lighter precipitation tended to be overestimated, but heavier precipitation was always underestimated. The post-processed QPFs showed a significant improvement from the raw forecasts and the effects of post-processing varied with the lead time, precipitation threshold and EPS. Precipitation was better corrected at longer lead times and higher thresholds. CSGD-EMOS was more effective for probabilistic metrics and the root-mean-square-error. QM had a greater effect on removing bias according to Bias and categorical metrics, but was unable to warrant reliabilities. In general, raw forecasts can provide acceptable QPFs 8 days in advance. After post-processing, the useful forecasts can be significantly extended beyond 10 days, showing promising prospects for flood forecasting.

**中文题目: TIGGE 日降水预报在中国衢江流域的评估**

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为探究集合天气预报在我国东南地区洪水预报中的应用潜力,本研究对美国国家环境预报中心(NCEP),欧洲中期天气预报中心(ECMWF)和中国气象局(CMA)的日定量降水预报(QPF)在衢江流域的预报能力进行评估,采用基于设限位移伽马分布的集合模型输出统计法(CSGD-EMOS)和分位点映射法(QM)对QPF进行后处理,分别验证预报数据在2009至2013年梅雨和台风季节的预报能力。结果显示ECMWF和NCEP对研究流域日降水具有不相上下的预报能力,其中ECMWF在台风季节表现更好而NCEP在梅雨季更有优势。CSGD-EMOS被发现在概率性指标和均方根误差中表现更好,而QM擅长纠正偏差,但无法保证预报可靠性。后处理前的QPF预见期约为8天,后处理后预见期有效延长到10天以上,表现出在洪水预报中的巨大潜力。

思维导图:

