Abstract

This thesis analyses comparison and verification of three global numeric weather models, GFS, ECMWF, NEMS. The research subjects are make comparison of their 48-hour forecast with, for this thesis created, index correspondence of models and evaluate predictability of weather. Next, introduce basic verification methods and their application to forecast verification, from previously mentioned models, against surface observations with resolution 2 ° x 2 ° lat/lon between 1. 6. 2017–28. 2. 2018.

Results show, that the worst predictability is at areas with continental glaciers, extensive world mountain ranges and at ITCZ area. The best predictability is observed in subtropical anticyclones over the oceans.

Verification of temperature we find out significant smoothing of diurnal cycle in all three models. Biases of relative humidity are strongly negative corelated with temperature bias, skill score for relative humidity is worse than for temperature. Performance of mean sea level pressure is the best for all verification metrics from all analysed quantities. Wind speed is for most world overestimated. Results of 3-hour precipitation depends on treshold. Models overestimate frequency of low intensity precipitation, opposite results are observed for high intensity precipitation, break occur at interval 0,3–1 mm/3-hours. Wind gusts are in general poorly forecast.