

MASTER OF SCIENCE IN METEOROLOGY

COMPARISON OF THE NAVAL OPERATIONAL GLOBAL ATMOSPHERIC PREDICTION SYSTEM CLOUD ANALYSES AND FORECASTS WITH THE AIR FORCE REAL TIME NEPH ANALYSES CLOUD MODEL

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This thesis compares RTNEPH and NOGAPS analyses for high, middle, and low clouds during January 1998 and October 1997. We believe that the RTNEPH analyses are reasonably accurate except for in the polar regions and the low clouds. NOGAPS forecasts at 12, 24, 36, and 48h are compared with the appropriate RTNEPH analyses. The difference fields averaged over a month show a rapid increase in the first 12 h over the forecast, followed by a slow growth to 48 h. The rapid increase is caused by model adjustment. The RTNEPH and NOGAPS (including forecasts) are separated into nine categories: clear, 0-20%, 20-40%, 40-60%, 60-80%, and 80-100%. When the clear and 0-20% categories are combined the RTNEPH and NOGAPS analyses compare well for high and middle clouds. However the RTNEPH and NOGAPS analyses are distributed differently for the other categories, and the RTNEPH has many more occurrences for the cloudiest category (80-100%). For low clouds the RTNEPH and the NOGAPS are quite different, since the RTNEPH has difficulty analyzing clouds at night. The NOGAPS and the RTNEPH (except for low clouds) generally agree on the clear areas. However, it appears that NOGAPS underestimates the number of mostly cloudy cases and the distribution of categories is different.

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