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Varying lake surface cover for reanalysis application

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Lakes modify the structure of the atmospheric boundary layer. They can intensify winter snowstorms, increase/decrease surface temperature and amount of precipitation. It has been shown that monthly varying lake surface cover has a significant positive impact over regions with prolong rain and dry seasons, especially over Malaysia, Indonesia and Papua New Guinea (see Kimpson et al., 2023).

At European Centre for Medium-Range Weather Forecasts (ECMWF) current lake mask is constant over time and represent permanent water over the period 1984-2018. To meet reanalysis requirements of monthly varying high-resolution lake mask outlined in CERISE project the Joint Research Centre (JRC) Global Surface Water Explorer (GSWE) dataset (Pekel et al., 2016) was used. Applied methodology, its advantages and drawbacks, as well as first results of monthly lake surface cover maps will be presented.