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We have compared differences between radiosonde observations in SW-Iceland and 48 hour forecast by a numerical weather prediction model over a period of five years (2000-2004). Temperature and height of the pressure levels of 925, 850 and 500 hPa were compared in search for systematic errors. In the overall mean, the predictions have little error and very limited bias. There are however slight seasonal variations and indications of situations where the model does relatively poorly. At 500 hPa there is a cold bias in the forecasts in late winter, but no such bias in the autumn and early winter. At the lowest level there is a tendency of a cyclonic bias in the forecasted wind direction in northeasterly winds and in westerly flow, there is a warm bias in the forecasts. Both of these systematic low-level errors are attributed to non-resolved orography; the bias in the wind direction is most likely due to an underestimation of the deviation of the flow by the mountains and the warm bias appears to be associated with an underestimation of the accumulation of low level cold air upstream of Iceland.