【General comments】

Yin et al. developed the East Asia Reanalysis System (EARS) and constructed a 39–year (1980–2018) reanalysis data over East Asia via the system with multi-source observations assimilated. The EARS and used observations are described in detail and principal work is conducted to validate the reliability of reanalysis datasets. This work is necessary and the conducted data has important potential applications for regional weather and climate studies. This manuscript is generally in a good shape. However, several minor revisions are still required before publication, listed as follows.

【Minor comments】

(1) The EARS covers a large domain. However, the observations out of China were not used in the validation. Although the results are reasonable and representative, it is advisable to give a detailed explanation in the text.

(2) Did the authors compare EARS with other regional and/or global reanalysis data, such as ERA5, CFSR, JMR, and others? This may be beyond the scope of this paper as the main purpose of this paper is to present EARS and preliminary results. If not, please specify this issue, which may encourage readers to conduct potential associated work.

(3) Given the present results, the EARS datasets are encouraging and promising. This paper is to report the progress of the project. I suggest the authors try to share all the EARS data to the public as soon as possible for potential applications.

(4) Lines 100-102: changing "*intending to produce a high-resolution 100 regional atmospheric reanalysis dataset for East Asia, with high quality for mesoscale weather system study and regional climate analysis*" to "*intending to produce a high-resolution 100 regional atmospheric reanalysis dataset with high quality for mesoscale weather system study and regional climate analysis over East Asia* ".

(5) Line 71: Please provide the horizontal resolution of China's first generation of global atmospheric reanalysis (CRA40) for general information.

(6) Line 176: changing "regular" into "conventional".

(7) Lines 306 and 311: missing "the" before RMSE.

(8) Line 324: modifying "*that WRF downscaling at a high resolution has significant performance gains in downscaling*" to "*significant performances have been gained in WRF downscaling at a high resolution*".

(9) Line 397: Please provide references for "*previous studies and with operational predictions*".