Trends in the occurrence of Australian northwest cloudbands

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The Australian Northwest Cloudband (NWCB) is a commonly-occurring continental-scale band of continuous cloud that stretches from northwest to southeast Australia. A typical example is presented in Fig. 1. They are associated with numerous weather features across the continent, including precipitation events.

We have developed an automatic algorithm to identify these features, and have applied it to once-per-day data of the recently-released H-Series product of the International Satellite Cloud Climatology Project (ISCCP) (Young et al., 2018) for the period 1984-2014. Fig. 2 shows the time series of cloud band counts for each season and for the annual total. It shows that there has been an increase in the number of these features in all seasons. All the trends are statistically different from zero ($p < 0.05$) except for those in autumn and winter.

We are exploring how the occurrence and structure of the cloudbands is associated with the regional scale circulation and its trends. This is being undertaken with the ERA-Interim reanalysis dataset (Dee et al. 2011).

Further details of this investigation can be found in Reid et al. (2019).

References

Dee, D. P., et al., 2011: The ERA-Interim reanalysis: Configuration and performance of the data assimilation system. *Quart. J. Roy. Meteor. Soc.*, **137**, 553-597, doi: 10.1002/qj.828.

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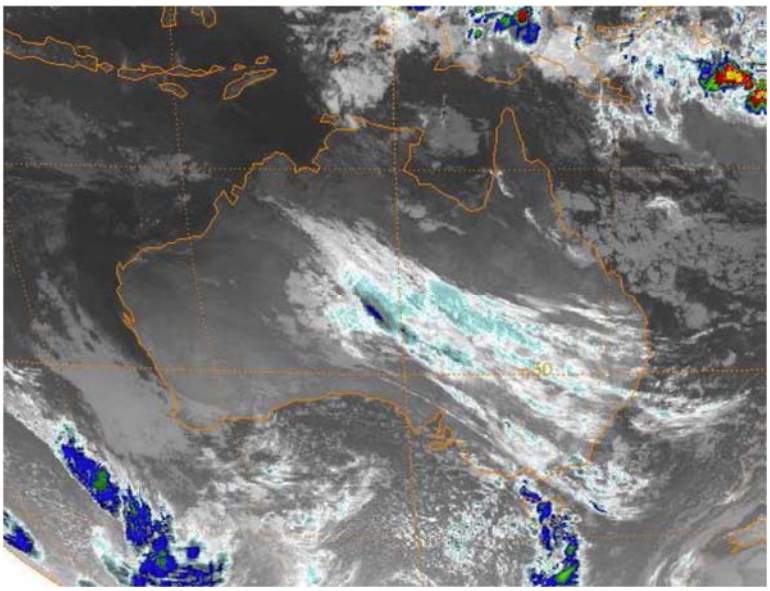

Fig. 1: Typical NWCB. 13 June, 1994, 12UTC (IR image from GMS-4).

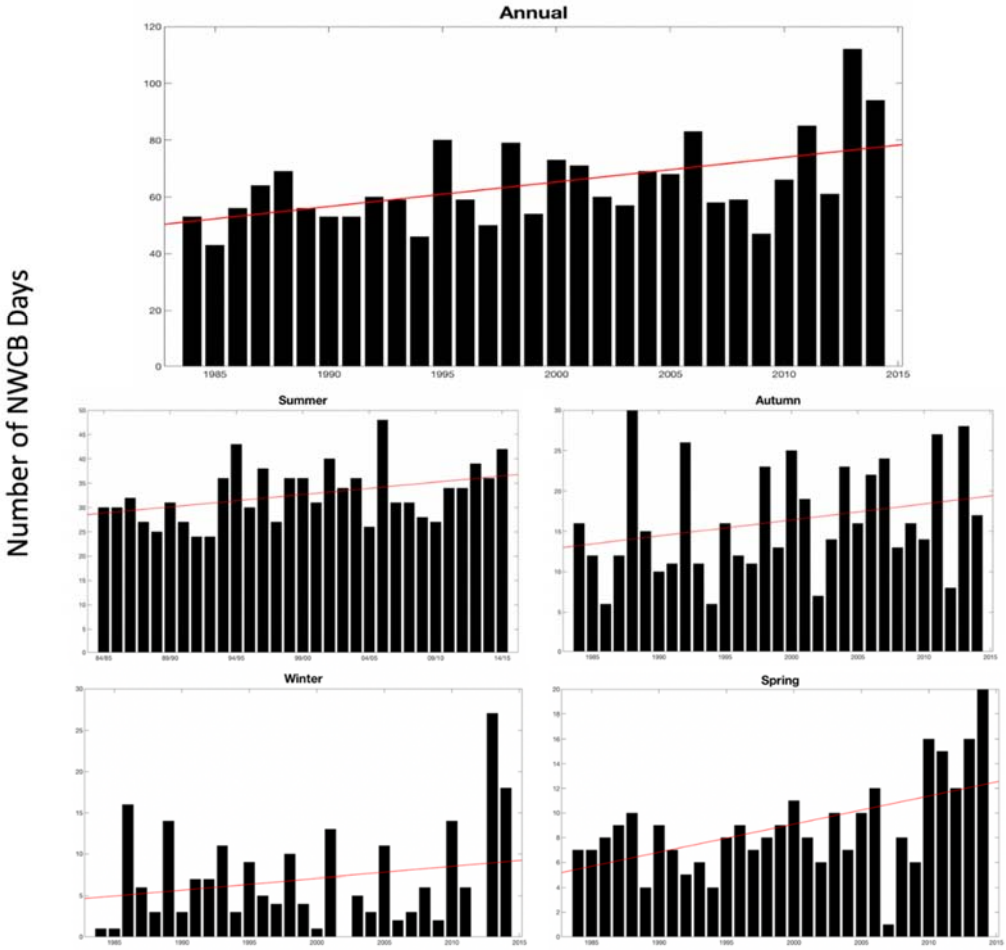

Fig. 2: Timeseries of the mean annual and seasonal number of NWCB days 1984-2014. The lines of least-squares best fit are indicated.