

Interactive comment on “A numerical study of the early stages of a tropical cyclogenesis in relation to the MJO” by J. Guerbette et al.

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We thank Reviewer #2 for his comments on our manuscript, and for pointing out its strengths and its weaknesses. We will be happy to submit a revised version. We have some further diagnoses available from the Meso-NH simulation (humidity and other thermodynamic fields, simulated IR brightness temperatures, see exemple in figure 1) and observations (Meteosat-7 geostationary infrared images, see exemple in figure 2) that may be used to complement our study and support our results, in the revised version of the manuscript. You may find enclosed some observed and simulated IR images. Reviewer #2 addresses several questions, for which we propose the following answers:

- about the comparison of our simulation with observations, there is clearly a lack of observations against which our simulation may be validated. RSMC La Réunion Best-Track starts on the 3rd of December, after the cyclone preformation period on which our study focusses, so we cannot use this source of data for validation. Still, we may use IR observations from Meteosat-7 (every 30 minutes), and also the similar simulated observations from Meso-NH (every 3 hours), in order to complement the validation of our simulation. The general behaviour of the simulated IR images fits well with the observations. These fields may also help to analyse the different phases of intensification of the MCS in the revised version of the manuscript.

- about the relationship between barotropic conversion and intensification, * the important point is indeed the relationship between barotropic conversion and intensification before the 28th Nov, when the MCS is close to the equatorial jet; this barotropic conversion term emphasizes that the MCS interacts with the jet and that this interaction is purely dynamical; we are convinced that this result is new and that it has important implications for our knowledge of the environmental conditions upon which tropical cyclogenesis may be favoured; after the 28th Nov, other processes occur; * to emphasize this result and determine the relative role of barotropic processes with regards to other processes, we may analyse more in depth other factors that control intensification; this work may be done in the revised version of the manuscript;

- about the robustness of our results, we may indeed conduct further experiments by changing the initial conditions (or initial time) and assess whether the role of the environment on the MCS remains important; this work may be done in the revised version of the manuscript.

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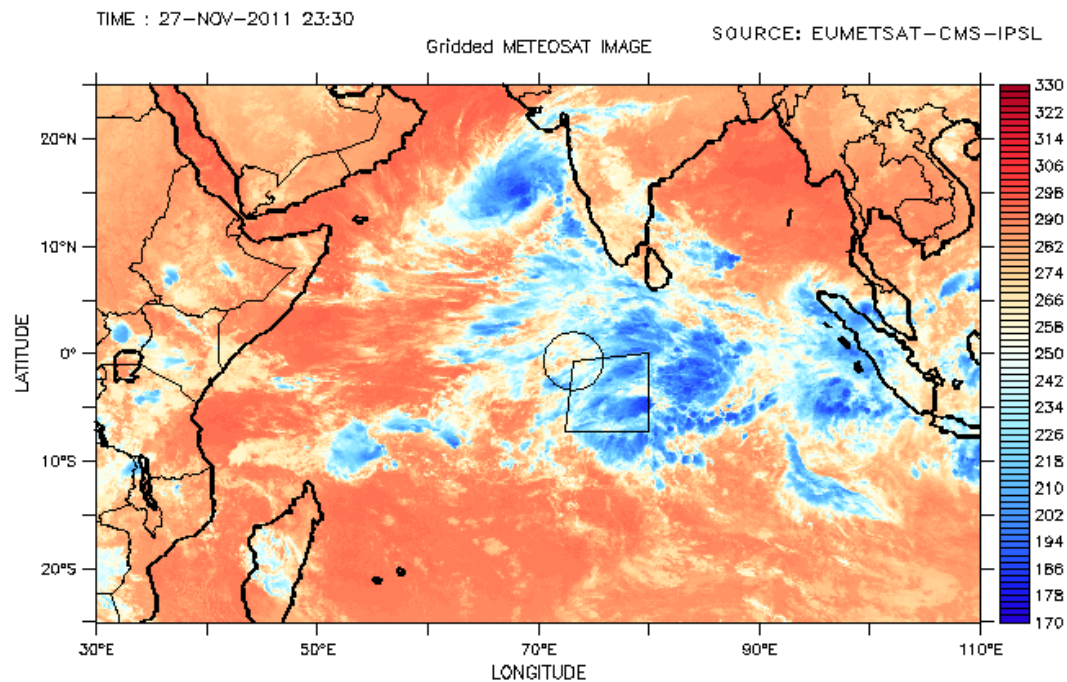
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Fig. 1.

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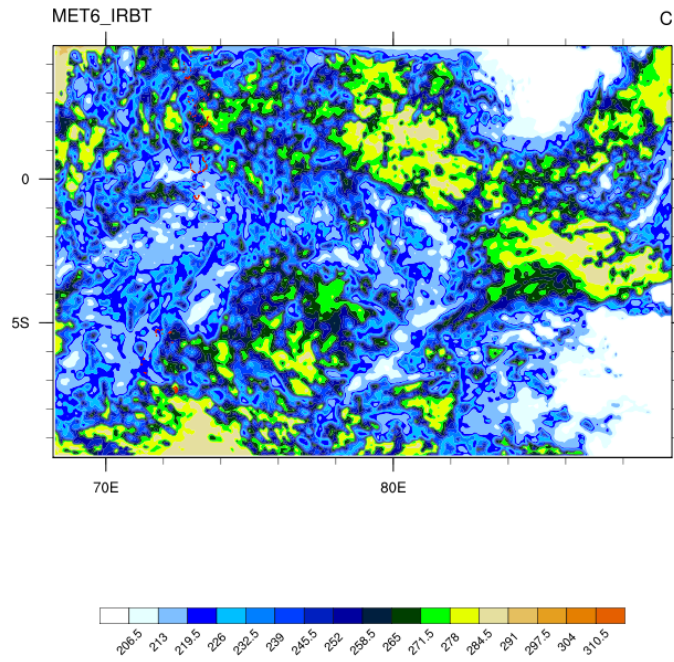


Fig. 2.

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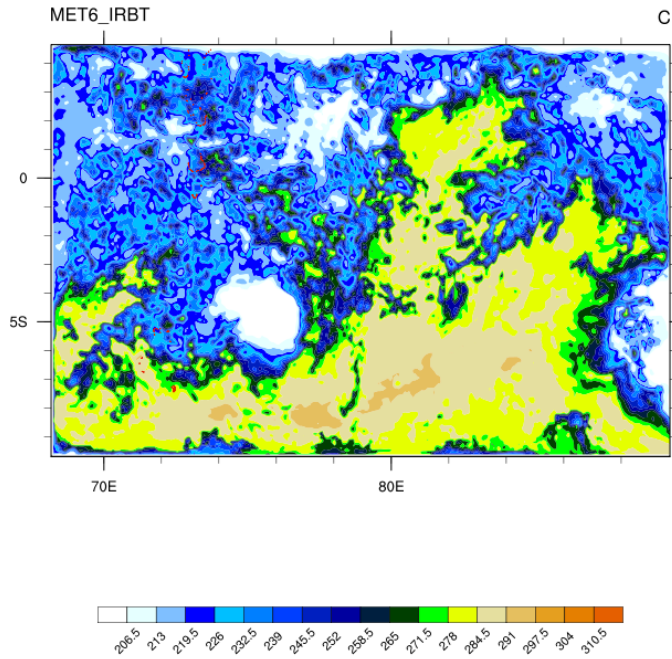


Fig. 3.

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