

Interactive comment on “Atmospheric rivers moisture transport from a Lagrangian perspective” by A. M. Ramos et al.

A. M. Ramos et al.

amramos@fc.ul.pt

Received and published: 19 January 2016

First of all thank you very much for the positive feedback regarding our study. We were aware of these two works done by Couto et al., 2012 and 2015, which have been cited recently by the authors in two submitted manuscripts covering topics related with the Island of Madeira. We agree that the two published articles can enrich the discussion and therefore they will be included in the new version of the discussion section.

Q1: page 2618, line 4: 2014 should be changed to 2012.

R1: The typo will be corrected.

Q2: page 2628, line 12, the title of the section should include the term “sources”, better reflecting the content of the section. May be: Atmospheric rivers source.

C1090

R2: The title of section 4 will be re-written to: “Atmospheric rivers moisture sources and transport”.

Q3 Figure 2: In my opinion it should be better if you show a larger domain that cover the entire North Atlantic Ocean in order to legitimate the conclusions about the location of the moisture sources of the atmospheric rivers.

R3: As mentioned in the manuscript Figure 2 was computed taking into account the maximum IVT positions of the different ARs along their first guess trajectories from an Eulerian point of view. In Figure 2 we are taking a snapshot of the most common path of the ARs and not analyzing the moisture sources. Two problems arise from doing the suggested modification: 1) there are not many identified ARs that make landfall in Europe and that are sufficiently long to extend west of the 50°W longitude mark and therefore the number of ARs to compute the median position and the respective 90th percentile and 10th percentile is not sufficiently robust. In addition, 2) as we go further south and west in the domain the background mean IVT increases and quite often the maximum IVT is due to its tropical location and not necessarily a local maximum associated with the ARs. Therefore in the new version of the manuscript we will retain the current version of Figure 2.

Please also note the supplement to this comment:

<http://www.earth-syst-dynam-discuss.net/6/C1090/2016/esdd-6-C1090-2016-supplement.pdf>

Interactive comment on Earth Syst. Dynam. Discuss., 6, 2617, 2015.