GENERAL COMMENT

We have changed the tittle by removing SHORT COMMUNICATION in the beginning so that the manuscript will be labelled so by the journal.

REFEREE 1

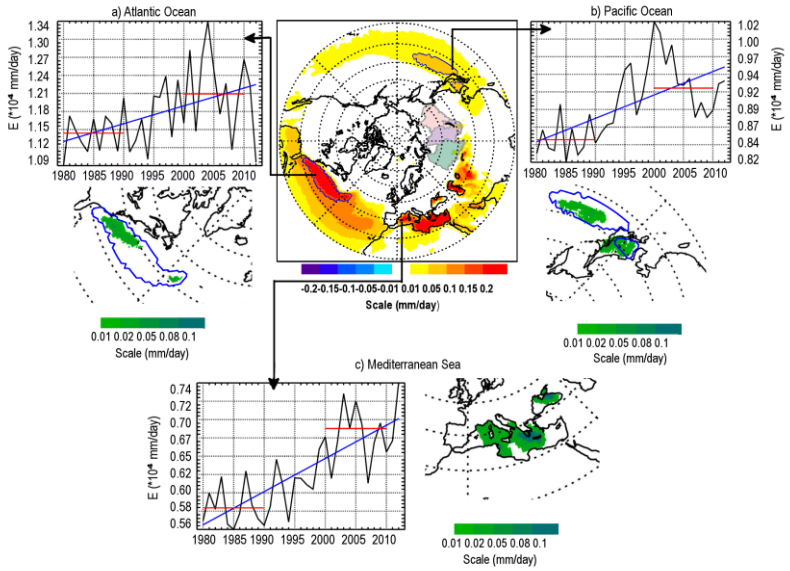
1) I suggest to shorten and to rewrite the abstract. The first sentence is confusing.

Shortened and rewritten also taking into account comments from other reviewers. The first sentence was deleted (Strikethrough text shows what is old and removed and text in red shows what is new and added)

~~" If we could choose a region where the effects of global warming are likely to be pronounced and considerable, and at the same time one where the changes could affect the global climate in similarly asymmetric way with respect to other regions, this would unequivocally be the Arctic. The atmospheric branch of the hydrological cycle lies behind the linkages between the Arctic system and the global climate.~~ Changes in the atmospheric moisture transport have been proposed as a vehicle for interpreting any of the most significant changes in the Arctic region. The increasing moisture over the Arctic during last decades it is not strongly associated with the evaporation that takes place within the Arctic area itself, despite the fact that the sea-ice cover is decreasing. Such increment is consistent is more dependent on ~~but to the fact that~~ the transport of moisture from the extratropical regions to the Arctic that has increased in recent decades, and is expected to increase within a warming climate. This increase could be due either to changes in circulation patterns which have altered the moisture sources, or to changes in the intensity of the moisture sources because of enhanced evaporation, or a combination of these two mechanisms. In this short communication we focus on the assessing more objectively the strong link between ocean evaporation trends and Arctic Sea ice melting. We will critically analyze several recent results suggesting links between moisture transport and the extent of sea-ice in the Arctic, this being one of the most distinct indicators of continuous climate change both in the Arctic and on a global scale. To do this we will use a sophisticated Lagrangian approach to develop a more robust framework on some of these previous disconnecting results, using new information and insights. Results reached in this study seems to stress the connection between two climate change indicators, namely an increase in evaporation over source regions (mainly the Mediterranean Sea, the North Atlantic Ocean and the North Pacific Ocean in the paths of the global western boundary currents and their extensions) and Arctic ice melting precursors. ~~Among the many mechanisms that could be involved are hydrological (increased Arctic river discharges), radiative (increase of cloud cover and water vapour) and meteorological (increase in summer storms crossing the Arctic, or increments in precipitation)"~~

2) Figure 1 is difficult to understand and too small. I suggest to separate it into 3 different Figures.

We appreciate the reviewer comment. The idea of plotting results in a single figure is to have a global vision of three sources of moisture together. We modified the figure as suggested the other reviewers and we hope that now it could be easier to follow than the original one.



3) The trends in the 3 regions show a pronounced decadal-scale variability and the authors should reflect about that.

We have added this to the sentence (in red)

"Although superimposed to a pronounced decadal-scale variability trends are significant in most of the grid points encircled, and are especially clear for the Atlantic, Pacific and Mediterranean sources"

4) What is the origin of the enhanced evaporation over the 3 ocean regions?

There are different factors that can affect the oceanic evaporation. Yu (2007) or Yu and Weller (2007) realized some studies on this topic finding a relationship between enhanced evaporation trends over the XXI century and wind speed or SST. In Yu (2007) it is reported:

"The analysis suggested a dominant role of the wind forcing in the decadal change of evaporation. It is hypothesized that wind impacts Evp in two ways. The first way is direct: the greater wind speed induces more evaporation by carrying water vapor away from the evaporating surface to allow the air–sea humidity gradients to be reestablished at a faster pace. The second way is indirect: the enhanced surface wind strengthens the wind-driven subtropical gyre, which in turn drives a greater heat transport by the western boundary currents, warms up SST along the paths of the currents and extensions, and causes more evaporation by enlarging the air–sea humidity gradients"

Despite its relevance we are not going to include this long reasoning in the text but only a reference to the wind forcing suggested by Yu (2007) article.

"The spatial distribution of these trends (Yu, 2007) shows that while the increase in evaporation has occurred globally, it has primarily been observed during the hemispheric winter and is strongest along the paths of the global western boundary currents and any inner Seas with wind forcing playing a dominant role."