

Interactive comment on “The 2010–2015 mega drought in Central Chile: Impacts on regional hydroclimate and vegetation” by René Garreaud et al.

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Summary

The study of Garreaud et al. puts the recent perennial drought conditions in Chile into a multi-dimensional historical and thematic context. The strengths of the manuscript lie in the holistic approach, the level of analytical detail, the visualization of drought conditions on a regional/global scale and the link to long-term climate conditions via tree-ring analysis. I agree with my fellow reviewer that, in the context of existing literature about the Chilean MD (even from the author's themselves), the novelty of the manuscript is questionable. However, what bothers me more is that the paper implies

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improved drought preparedness via an “understanding of the nature and biophysical impacts of the MD”. Unfortunately, it fails to relate the presented findings to any kind of decision-making or socio-economic response. I see potential in the paper if the authors manage to link the tracking of the MD through the season(s) via different variables and the MD’s historical/climatic context to any kind of suggestion for decision-support, such as socio-economic countermeasures (e.g. changes in agricultural practices, consideration of seasonal climate forecasts). I understand that an in-depth consideration of the manuscript’s findings related to decision-support or climate-change adaptation is out of scope, but even a superficial discussion would improve the manuscript’s

For a detailed review please have a look at the attached .pdf document.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2017-191>, 2017.

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Discussion paper



Review of:

"The 2010-2015 mega drought in Central Chile: Impacts on regional hydroclimate and vegetation"

René Garreaud, Camila Alvarez-Garretón, Jonathan Barichivich, Juan Pablo Boisier, Duncan Christie, Mauricio Galleguillos, Carlos LeQuesne, James McPhee, Mauricio Bigjari

Summary

The study of Garreaud et al. puts the recent perennial drought conditions in Chile into a multi-dimensional historical and thematic context. The strengths of the manuscript lie in the holistic approach, the level of analytical detail, the visualization of drought conditions on a regional/global scale and the link to long-term climate conditions via tree-ring analysis. I agree with my fellow reviewer that, in the context of existing literature about the Chilean MD (even from the author's themselves), the novelty of the manuscript is questionable. However, what bothers me more is that the paper implies improved drought preparedness via an "understanding of the nature and biophysical impacts of the MD". Unfortunately, it fails to relate the presented findings to any kind of decision-making or socio-economic response. I see potential in the paper if the authors manage to link the tracking of the MD through the season(s) via different variables and the MD's historical/climatic context to any kind of suggestion for decision-support, such as socio-economic countermeasures (e.g. changes in agricultural practices, consideration of seasonal climate forecasts). I understand that an in-depth consideration of the manuscript's findings related to decision-support or climate-change adaptation is out of scope, but even a superficial discussion would improve the manuscript's overall relevance.

Main comments

- The manuscript needs to be more clearly distinguished from the authors' other publications
- References and figures need to be reviewed (some are missing, some only mentioned in the reference list, but not in the text)
- Although 2010 was the strongest La Niña year during the MD period 2011, 2013 and 2014 were La Niña years as well. Could these conditions have contributed to the MD's persistence?

General comments

- Whenever you talk about rainfall deficits and related percentages please mention the reference period
- Instead of describing selected drought events in the introduction I suggest you provide more general statistics, if available (e.g. from UNISDR; EMDAT might not be a good choice)

Fig. 1.