

Response to the comment of Anonymous Referee # 1

We would like to thank the reviewer for his kind assessment of the manuscript. Below is our response to the issues raised in the review. The original comment is printed in plain font, our response is printed in italics.

General:

The paper is well written; it is highly descriptive and provides relevant facts on impacts of droughts in different countries for the year 2015. However for the reader it would have been easier to if the different aspects of droughts would have been summarized in a table for the different countries. One aspect however is missing when talking about droughts for a year. It is very important to provide information about the meteorological conditions of the previous year, especially if you look at the status of the aquifers.

We thank the referee for this excellent evaluation.

We suggest that we will provide a table that summarizes the different aspects of drought by country. A draft table is contained in the Appendix (Tab. S1)

We further suggest to present the January-SPEI(6) (of Aug—Jan) (Table S1) (whose time scale has been optimized for covering not only fall and winter precipitation but also the major precipitation events of August 2002) to summarize antecedent conditions. A draft of the Figure is shown in Fig. S1 illustrating that the mayor rainfall event is well represented by the figure.

Conclusions:

A European network experts on water scarcity and droughts produced a report in 2007 on drought management plans as part of the Common Implementation Strategy of the Water Framework Directive, which was endorsed by the member States in November 2007. The report sets out recommendations in preparing drought management plans. Examples are shown for some Member States. The authors could have explored in the first place the status of the implementation in the Member States instead of referring to the example given by GWP and WMO.

We appreciate the reminder and suggest that we will refer to the report and the need for hydrological flow indices in the introduction and again pick it up in the discussion. The status of RBMP implementation appears not directly relevant to this study's objective of understanding the physical hydrological aspects of extent and propagation of the hydrological drought, but we agree that the report helps to highlight the need and potential benefits of common indices.

Reference:

Water Scarcity and Droughts Expert Network: Drought Management Plan Report - Including Agricultural, Drought Indicators and Climate Change Aspects. [online] Available from: http://ec.europa.eu/environment/water/quantity/pdf/dmp_report.pdf (Accessed 30 November 2016), 2007.

Figures

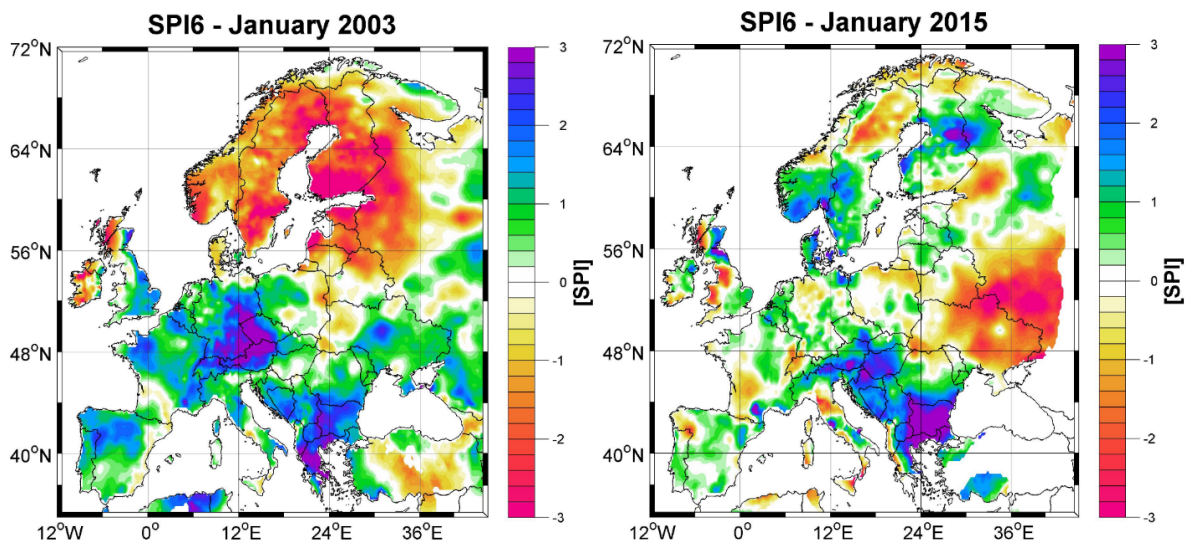


Figure S1. SPI6 for January 2003 (left) and January 2015 (right). Reference period 1971-2000.

Tables

Table S1: Statistical summary of low flow and streamflow drought characteristics of 2003 (top) and 2015 (bottom) by country.

	Discharge					Duration					Volume					
	min	q25	q50	q75	max	min	q25	q50	q75	max	min	q25	q50	q75	max	
2003																
at	1.0	1.9	4.1	13.5	100.0	1.1	1.8	3.5	17.5	100.0	1.1	1.9	4.0	14.9	100.0	
be	1.2	2.0	2.9	5.3	100.0	1.1	2.5	6.4	13.4	30.4	1.2	2.1	5.2	16.9	46.0	
cz	2.4	6.3	10.2	21.0	100.0	4.7	8.8	14.4	29.5	34.2	2.9	12.3	20.6	33.0	57.4	
fr	1.2	2.7	5.7	22.6	100.0	1.1	3.5	6.9	12.1	68.7	1.1	3.5	9.1	20.2	87.5	
de	1.1	3.9	8.4	26.7	100.0	1.2	6.6	13.3	24.1	69.3	1.2	7.7	15.6	33.5	85.4	
nl	1.0	8.6	16.2	17.2	18.3	4.2	7.8	11.3	14.9	18.4	7.2	10.4	13.5	16.7	19.8	
no	1.0	1.4	2.1	3.4	100.0	1.0	1.4	2.2	4.4	97.7	1.1	1.7	2.3	4.0	41.9	
pl	3.3	7.0	10.2	14.0	100.0	3.4	6.0	13.3	21.5	39.8	3.1	7.0	16.9	35.5	46.2	
ro	1.7	2.9	4.1	15.3	100.0	1.5	3.5	5.0	13.4	31.5	1.4	3.3	4.8	16.1	62.1	
sk	2.0	4.1	7.4	20.0	100.0	3.4	15.6	21.8	29.0	60.4	4.5	9.6	18.6	40.3	54.9	
es	1.0	1.6	1.8	1.9	2.6	1.1	1.2	1.6	1.7	3.9	1.1	1.4	1.4	1.5	6.4	
ch	1.0	2.8	9.2	49.9	100.0	1.0	2.3	5.2	14.1	100.0	1.1	3.0	10.3	23.4	100.0	
gb	1.2	2.2	3.1	5.9	100.0	1.2	2.6	4.6	11.6	79.8	1.2	2.7	5.2	11.5	85.1	
2015																
at	1.0	1.1	1.9	4.4	100.0	1.0	1.2	2.1	3.9	100.0	1.0	1.2	1.9	5.6	100.0	
be	1.4	2.6	3.2	73.2	100.0	1.2	2.8	3.6	6.0	17.9	1.2	3.0	4.9	11.5	22.6	
cz	2.5	59.3	100.0	100.0	100.0	1.3	10.0	12.6	16.2	24.2	1.5	23.3	31.9	37.5	100.0	
fr	1.0	1.6	2.7	4.6	100.0	1.1	1.7	3.1	7.8	56.2	1.1	1.6	3.2	8.1	85.6	
de	1.0	2.8	7.9	18.0	100.0	1.0	3.0	6.1	10.9	29.3	1.1	4.2	7.8	21.7	100.0	
nl	2.3	2.3	2.3	2.6	2.8	3.4	3.4	3.4	5.4	7.4	1.6	2.1	2.7	5.1	7.6	
no	1.0	1.0	1.1	1.4	27.8	1.0	1.1	1.1	1.5	6.0	1.0	1.1	1.1	1.3	8.3	
pl	1.2	1.6	4.2	11.7	39.1	1.2	2.9	4.7	7.5	36.3	1.1	3.4	10.5	14.9	22.1	
ro	1.7	7.0	9.6	100.0	100.0	1.2	2.4	6.8	12.1	100.0	1.2	4.7	18.3	26.3	100.0	
sk	1.1	2.0	2.7	5.1	22.0	1.1	1.5	1.9	4.8	82.2	1.1	1.9	2.3	4.2	47.5	
es	1.3	1.4	1.9	2.4	100.0	1.2	1.2	1.2	1.4	3.5	1.2	1.2	1.3	1.8	4.5	
ch	1.0	1.1	2.3	4.7	100.0	1.1	1.5	4.0	8.2	65.2	1.0	1.3	2.5	9.3	100.0	
gb	1.0	1.2	1.6	2.3	9.7	1.0	1.2	1.6	2.5	17.1	1.0	1.2	1.5	2.2	8.7	