

THE STATE OF ART OF THE DROUGHT STUDIES IN SPAIN



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1. Introduction: Drought in Spain

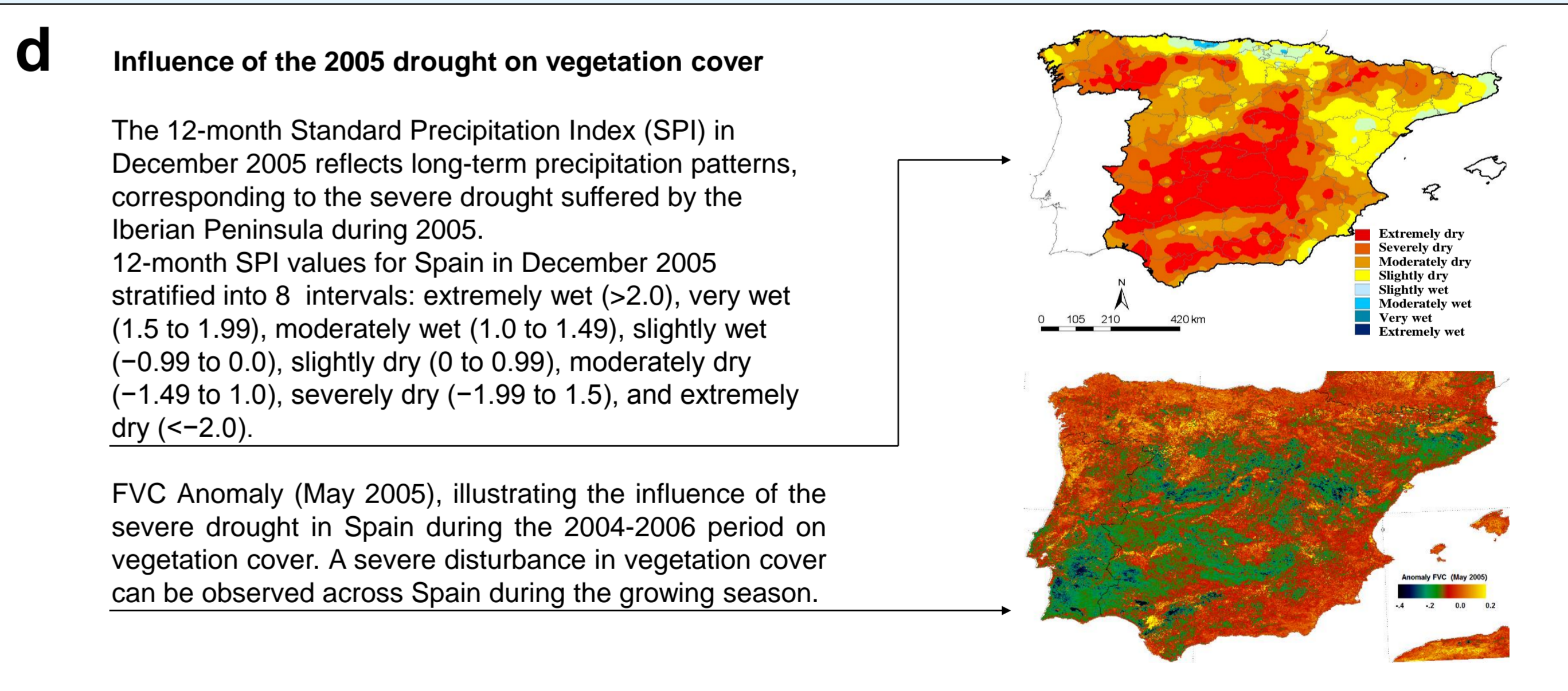
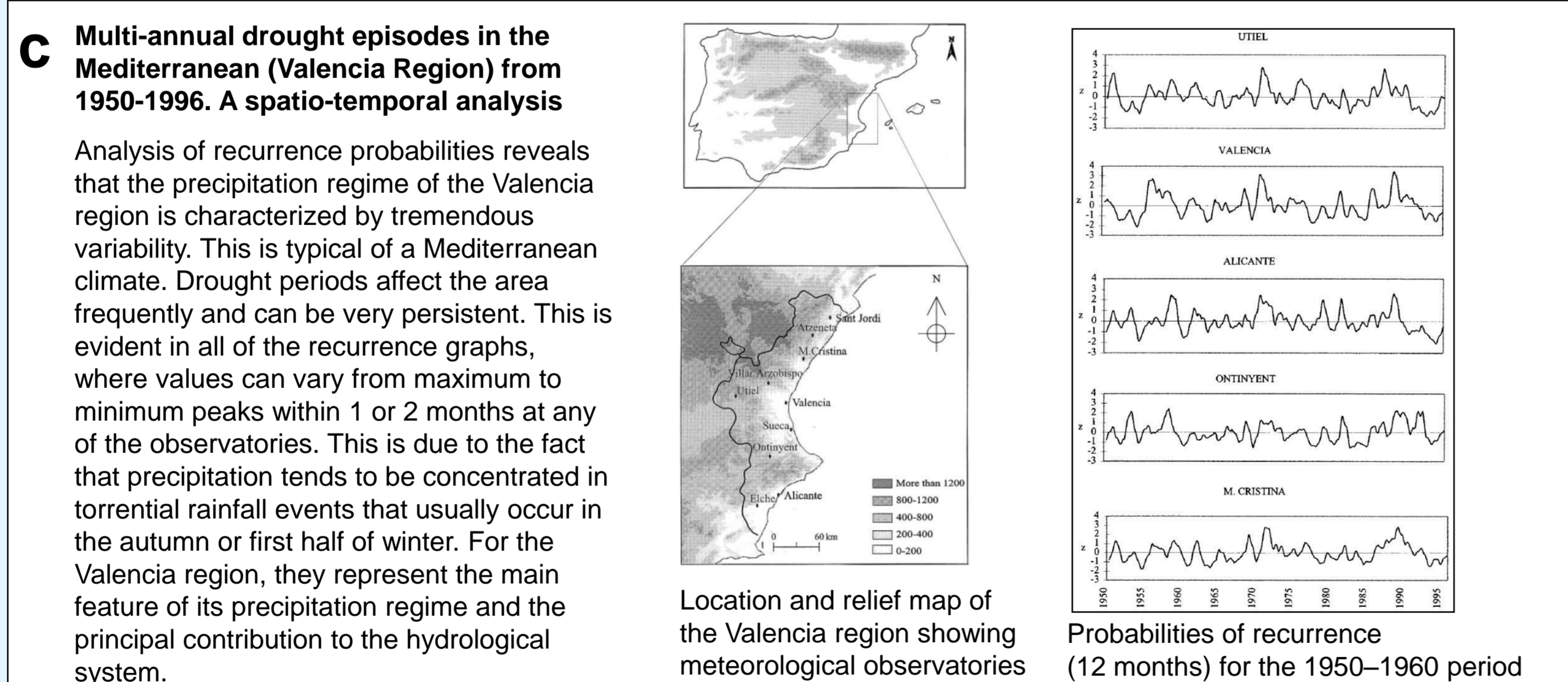
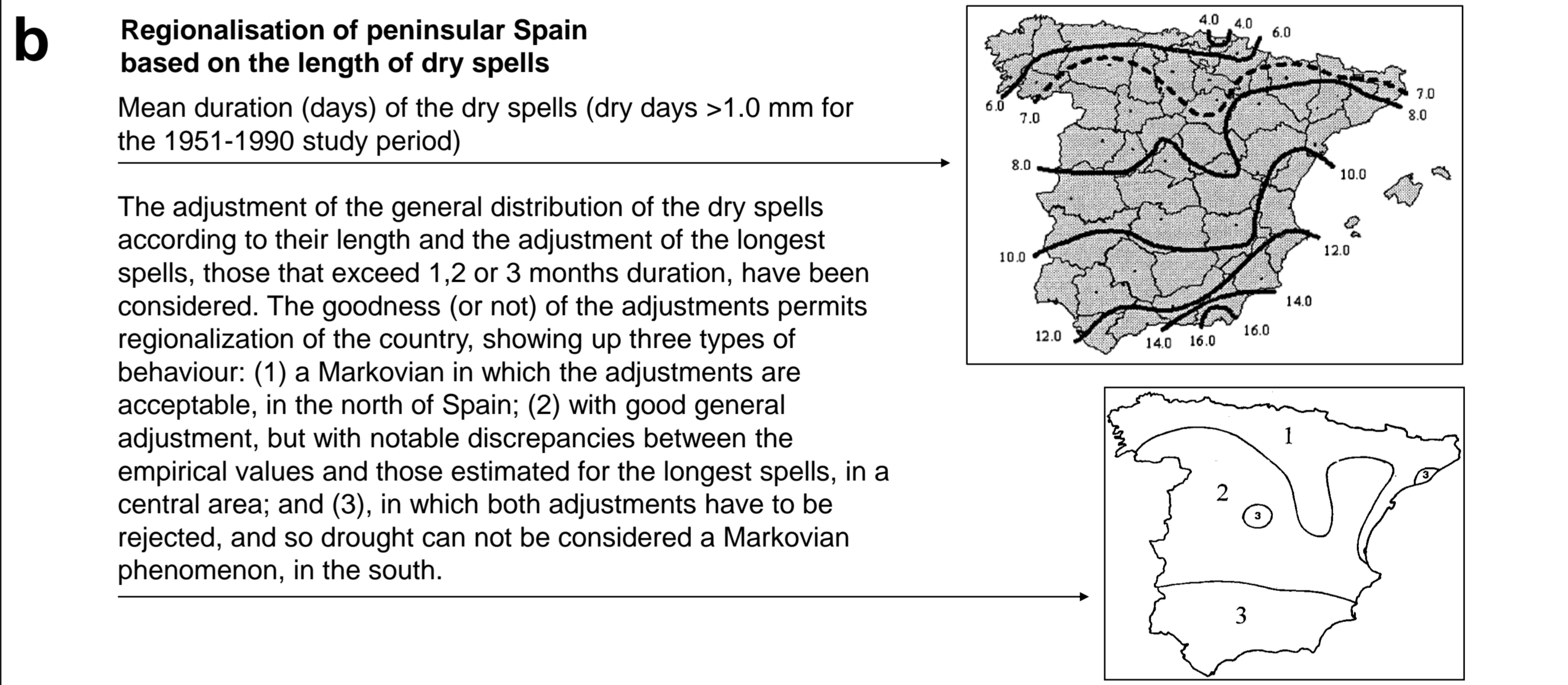
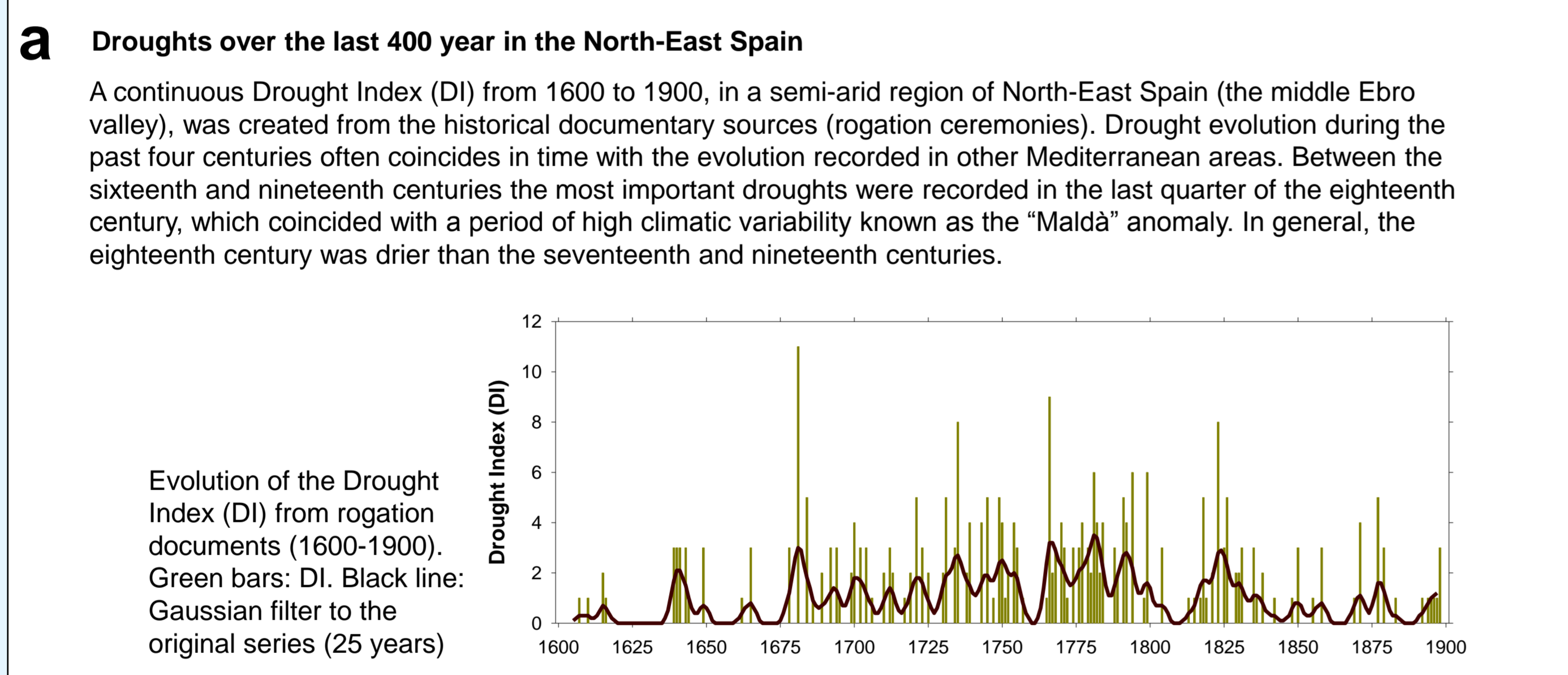
Drought is one of the most important natural hazards in Spain in terms of frequency, severity and economical losses. The drought as a climatic phenomenon has a slow implementation but it spreads throughout vast territories. The longest dry spells (dry day <math><0.1\text{ mm}</math>) lasted more than 150 days in the south of Iberian Peninsula over 40-years periods. The persistence of the dry days is so high in southern Iberia than the phenomena can not be considered as Markovian, even using Markov-chains of orders higher than 2. That kind of spells occurs in the warm part of the year, but long droughts are recorded also in other seasons. The consequences of this water deficit are alternated by heavy rainfall events, and its harmful impact on society becomes more noticeable by the increasing demands of agriculture with support irrigation and the recent urban development.

2. Studies on droughts in Spain

A like-bibliometric analysis over a wide collection of studies on drought in Spain has been made. The studies deal with analysis on drought indices, persistence of dry periods, socio-economical impacts, regional characteristics, synoptic genesis, influence of low-frequency variability patterns, spring precipitation variability, etc. Therefore, we must test the drought indices and times scales in order to achieve a good modelling of the different droughts types under extreme environmental conditions and increasing water demands.

Some examples of several studies on droughts in Spain are shown: Cuadrat (a), Martin-Vide and Gomez (1999) (b), Estrela *et al.* (2000) (c) and García-Haro *et al.* (2010) (d). Some perspectives in the improvement of drought studies are also shown: Guijarro (e) and Valero *et al.* (f).

3. Examples



4. Perspectives

