

Figure S1. Two very different looking precipitationsheds with the same underlying data. Both figures show the absolute precipitationshed of the West-Sahel sink region (yellow border), expressed in terms of absolute evaporation (mm/growing season contributed to sink region precipitation). Compare also Figure 2a. The second color scale in (a) and (b) indicates which percentage of the precipitation in the West-Sahel region is generated within the area indicated by the corresponding colors. This figure illustrates the necessity of having a second color scale to interpret the data.

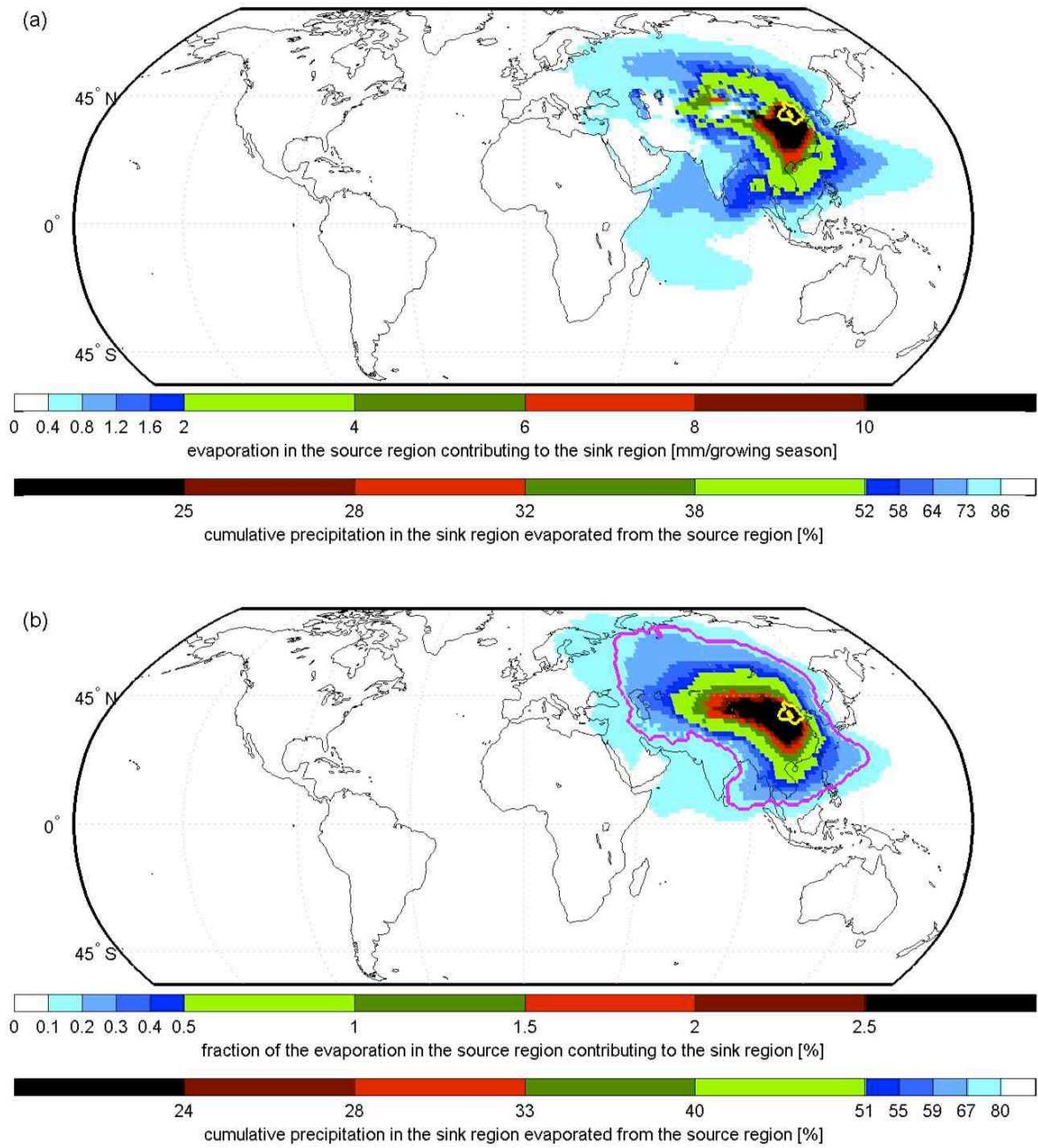


Figure S2. Precipitationsheds: **(a)** The absolute precipitationshed of the East China sink region (yellow border), expressed in terms of absolute evaporation mm/growing season contributed to sink region precipitation; **(b)** The relative precipitationshed of the East China sink region (yellow border), expressed in terms of a fraction of the evaporation contributed to sink region precipitation. The second color scale in (a) and (b) indicates which percentage of the precipitation in the East China region is generated within the area indicated by the corresponding colors. The pink border in (b) (= the green border in Figure 4) is the relative precipitationshed for the East China region (at 70% contribution).

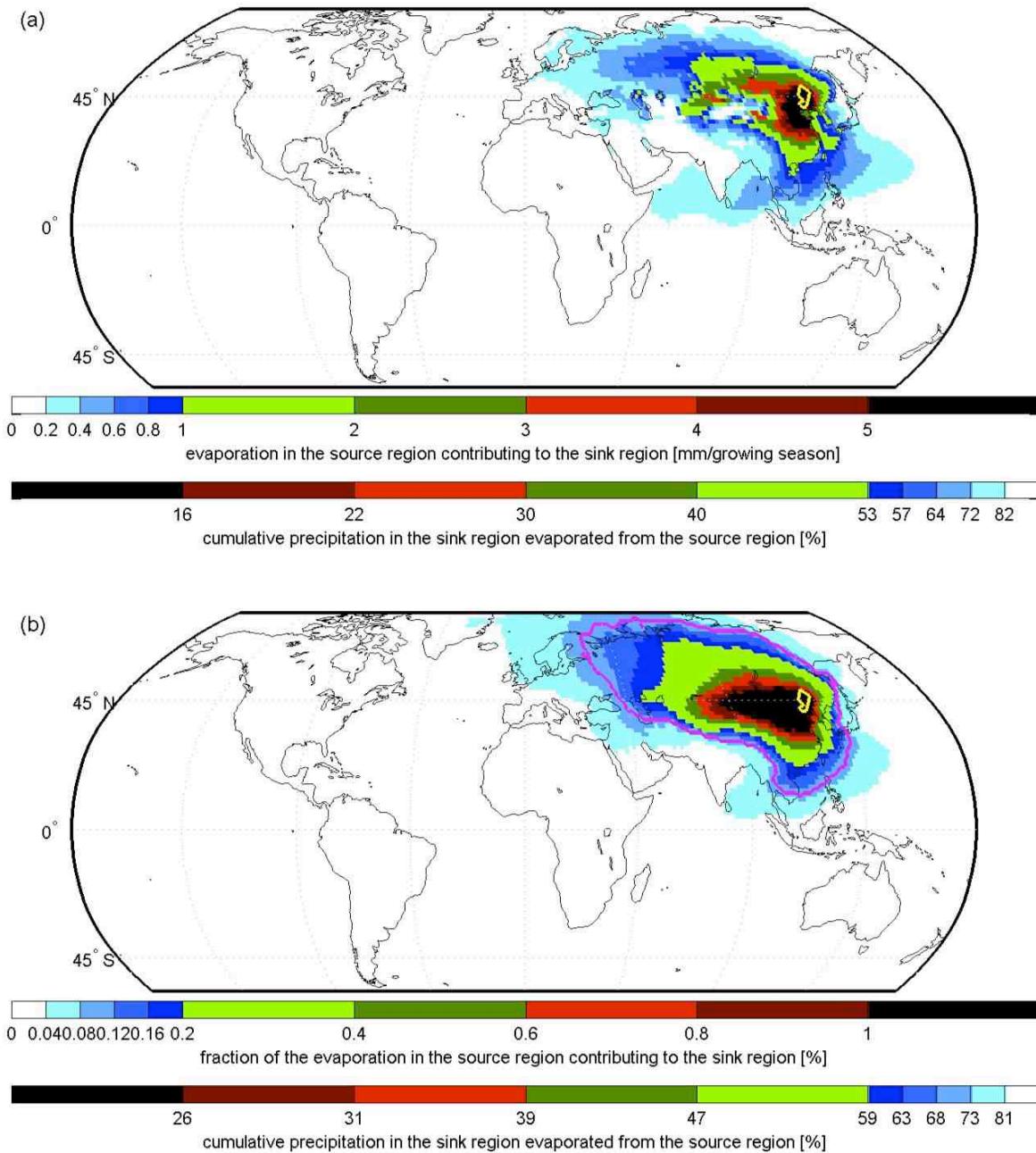


Figure S3. Precipitationsheds: **(a)** The absolute precipitationshed of the North China sink region (yellow border), expressed in terms of absolute evaporation mm/growing season contributed to sink region precipitation; **(b)** The relative precipitationshed of the North China sink region (yellow border), expressed in terms of a fraction of the evaporation contributed to sink region precipitation. The second color scale in (a) and (b) indicates which percentage of the precipitation in the North China region is generated within the area indicated by the corresponding colors. The pink border in (b) (= the blue border in Figure 4) is the relative precipitationshed for the North China region (at 70% contribution).

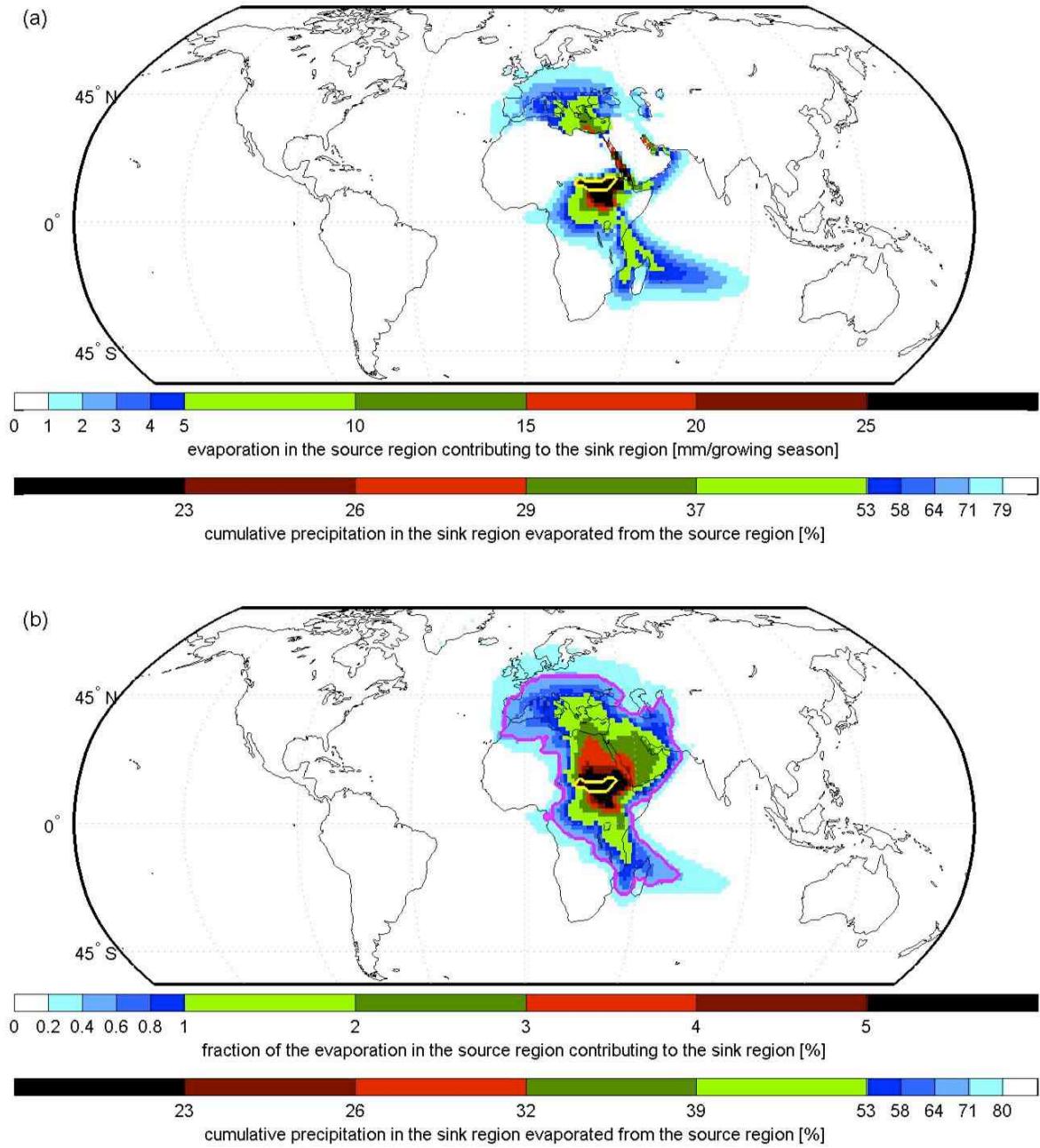


Figure S4. Precipitationsheds: **(a)** The absolute precipitationshed of the East Sahel sink region (yellow border), expressed in terms of absolute evaporation mm/growing season contributed to sink region precipitation; **(b)** The relative precipitationshed of the East Sahel sink region (yellow border), expressed in terms of a fraction of the evaporation contributed to sink region precipitation. The second color scale in (a) and (b) indicates which percentage of the precipitation in the East Sahel region is generated within the area indicated by the corresponding colors. The pink border in (b) (= the yellow border in Figure 4) is the relative precipitationshed for the East Sahel region (at 70% contribution).

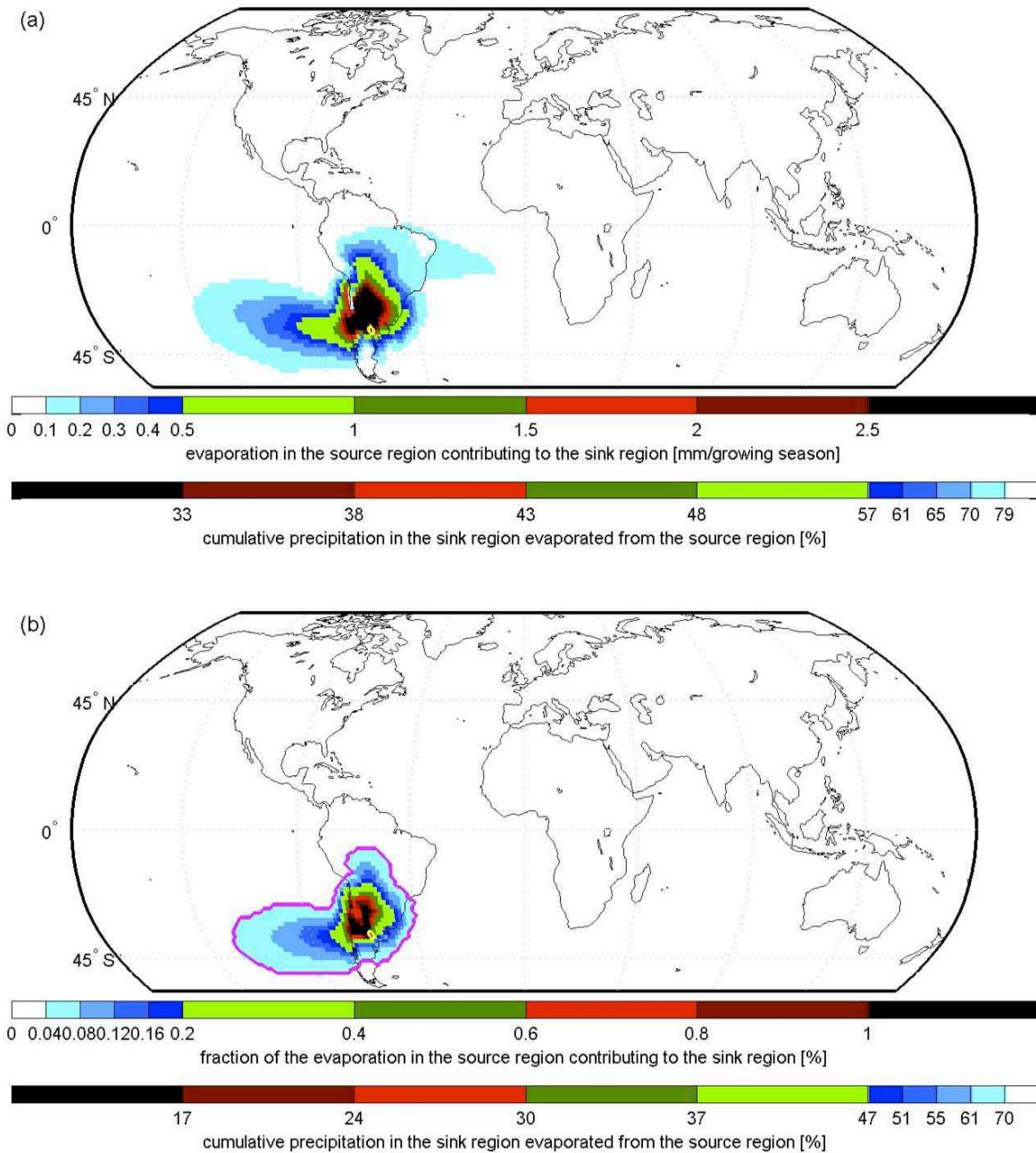


Figure S5. Precipitationsheds: **(a)** The absolute precipitationshed of the Argentina sink region (yellow border), expressed in terms of absolute evaporation mm/growing season contributed to sink region precipitation; **(b)** The relative precipitationshed of the Argentina sink region (yellow border), expressed in terms of a fraction of the evaporation contributed to sink region precipitation. The second color scale in (a) and (b) indicates which percentage of the precipitation in the Argentina region is generated within the area indicated by the corresponding colors. The pink border in (b) (= the red border in Figure 4) is the relative precipitationshed for the Argentina region (at 70% contribution).

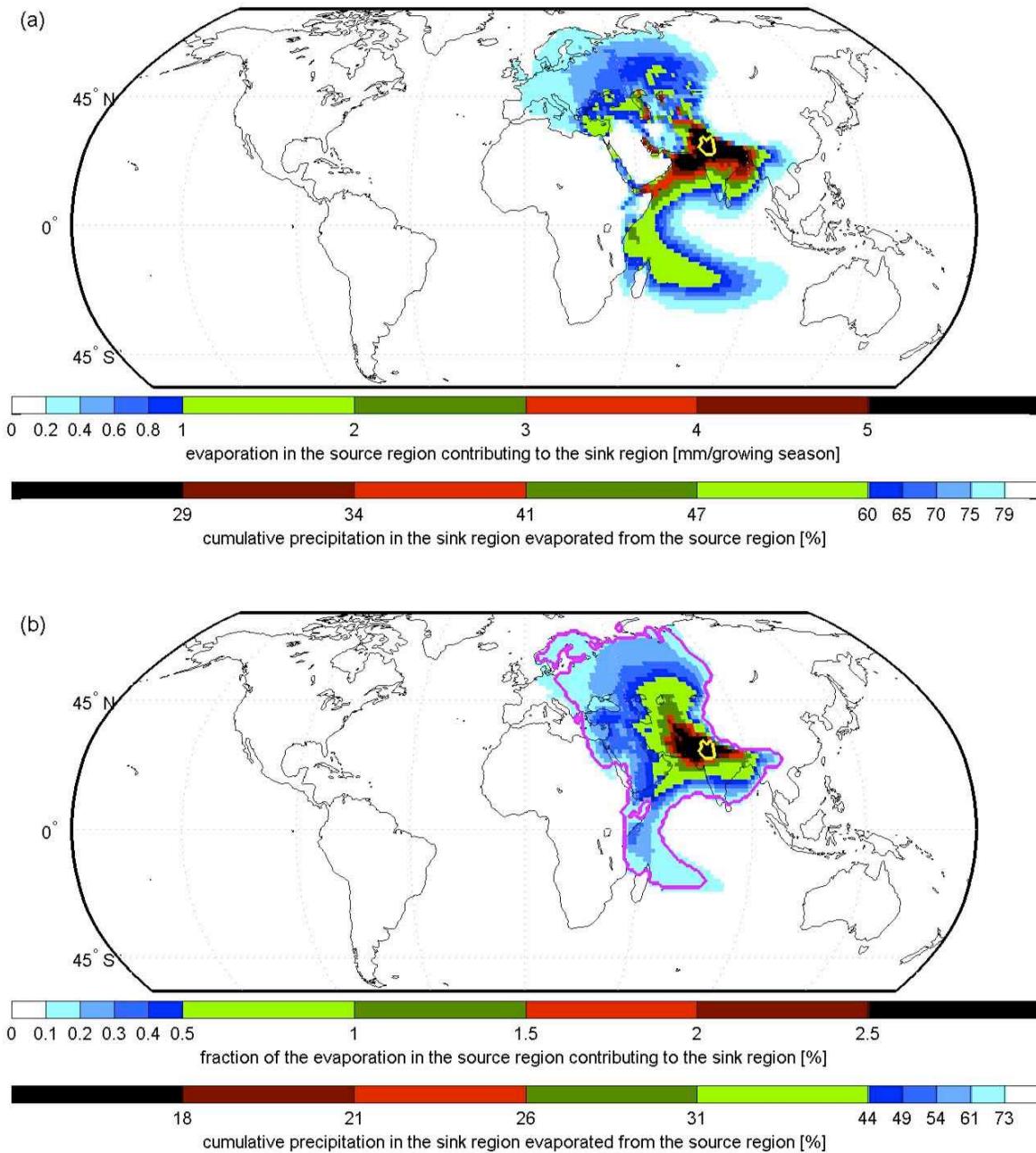


Figure S6. Precipitationsheds: **(a)** The absolute precipitationshed of the Pakistan-India sink region (yellow border), expressed in terms of absolute evaporation mm/growing season contributed to sink region precipitation; **(b)** The relative precipitationshed of the Pakistan-India sink region (yellow border), expressed in terms of a fraction of the evaporation contributed to sink region precipitation. The second color scale in (a) and (b) indicates which percentage of the precipitation in the Pakistan-India region is generated within the area indicated by the corresponding colors. The pink border in (b) (= the pink border in Figure 4) is the relative precipitationshed for the Pakistan-India region (at 70% contribution).

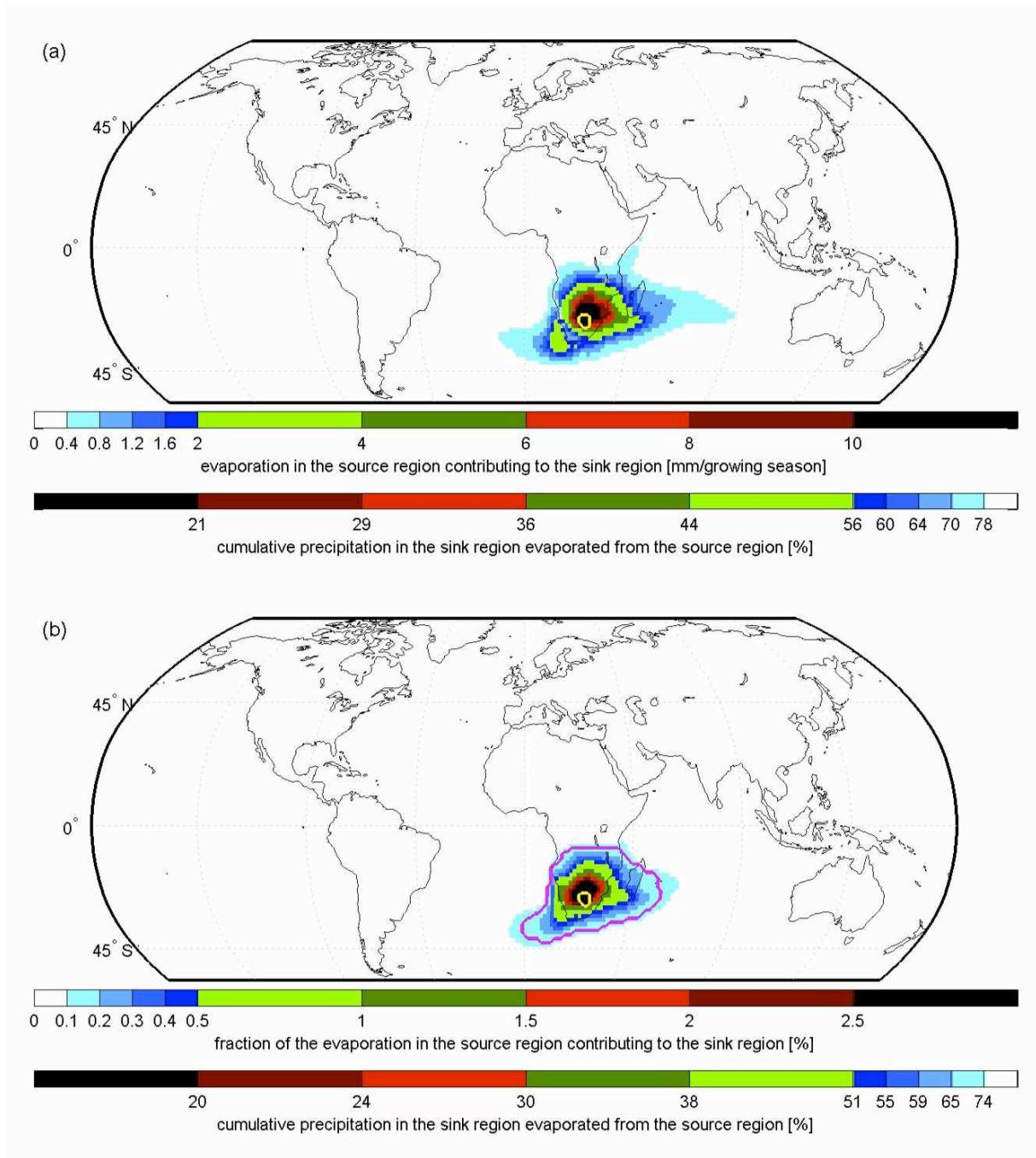


Figure S7. Precipitationsheds: **(a)** The absolute precipitationshed of the South-Africa sink region (yellow border), expressed in terms of absolute evaporation mm/growing season contributed to sink region precipitation; **(b)** The relative precipitationshed of the South-Africa sink region (yellow border), expressed in terms of a fraction of the evaporation contributed to sink region precipitation. The second color scale in (a) and (b) indicates which percentage of the precipitation in the South-Africa region is generated within the area indicated by the corresponding colors. The pink border in (b) (= the light blue border in Figure 4) is the relative precipitationshed for the South-Africa region (at 70% contribution).