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Theano Iliopoulou (1), Christina Aguilar (2), Berit Arheimer (3), María Bermúdez (4), Nejc Bezak (5), Andrea Ficchi (6), Demetris Koutsoyiannis (1), Juraj Parajka (7), María José Polo (8), Guillaume Thirel (6), and Alberto Montanari (9)

(1) Department of Water Resources and Environmental Engineering, School of Civil Engineering , National Technical University of Athens, Zographou, 15780, Greece (theano_any@hotmail.com; dk@itia.ntua.gr), (2) Fluvial dynamics and hydrology research group, Andalusian Institute of Earth System Research, University of Granada, Granada, 18006, Spain (caguilar@ugr.es), (3) Swedish Meteorological and Hydrological Institute, 601 76 Norrköping, Sweden (berit.arheimer@smhi.se), (4) Department of Hydraulic Engineering, ETSECCP, University of A Coruña, Campus Elviña 15071 A Coruñ, Spain (mbermudez@udc.es) , (5) Faculty of Civil and Geodetic Engineering, University of Ljubljana, Jamova 2, SI-1000 Ljubljana, Slovenia (Nejc.Bezak@fgg.uni-lj.si), (6) IRSTEA, Hydrology Research Group (HBAN), Antony, France (andrea.ficchi@irstea.fr; guillaume.thirel@irstea.fr), (7) Vienna University of Technology, Institute of Hydraulic Engineering and Water Resources Management, Karlsplatz 13/222, A-1040 Vienna, Austria (parajka@hydro.tuwien.ac.at), (8) Fluvial dynamics and hydrology research group, Andalusian Institute of Earth System Research, University of Córdoba, Cordoba, 14071, Spain (mjpolo@uco.es), (9) Department DICAM, University of Bologna, Bologna, 40136, Italy (alberto.montanari@unibo.it)

We investigate the long memory properties of 224 european rivers spanning more than 50 years of daily flow data. For this purpose, we identify two periods of interest; High Flow Seasons (HFS) as 3-month periods receiving the maximum occurrences of peaks-over-threshold flows and Dry Months (DM) as 1-month periods with the minimum average flow. We compute the lagged seasonal correlation for the peak flows in the HFS and the average flows in the DM both against the average flows in the antecedent months. The HFS and DM correlations are compared in terms of magnitude and variability and both are linked to geophysical river characteristics, e.g. basin size and baseflow index along with various site-specific catchment controls (e.g. lakes, glaciers etc.). Through a Meta-Gaussian data assimilation approach, we explore the benefit from conditioning the peak flow distribution in the HFS upon observance of a higher-than-usual (e.g. 95th quantile) flow in the pre-HFS month. To this end, the estimated correlation between the peak flows in HFS and average flows in the pre-HFS month is employed in fitting a bivariate Meta-Gaussian probability distribution model. The benefit of the suggested approach is showcased by updating the flood frequency distribution in real-world applications. Our findings suggest that river memory has a prominent physical basis and a high technical relevance in the case of seasonal flood frequency prediction.