

METEOCLIMATIC REPORT AND ACTIVITIES RELATED TO THE RURITAGE PROJECT

SEPTEMBER 2021

The first month of meteorological autumn 2021 was characterized by an almost uncontested dominance of the subtropical oceanic anticyclone, alternating with brief appearances of the continental one (fig. 2) which guaranteed stable and sunny weather conditions for the entire month which was result almost completely dry, in a thermal context slightly higher than the climatic averages calculated for the last forty years and coinciding with that of the last fifteen years. The sum of rainfall was only 2 mm, with a single rainy day, a condition that further aggravated the persistent drought situation for over a year, and the definition of extreme drought taking into account the SPI (Standardized Precipitation Index).

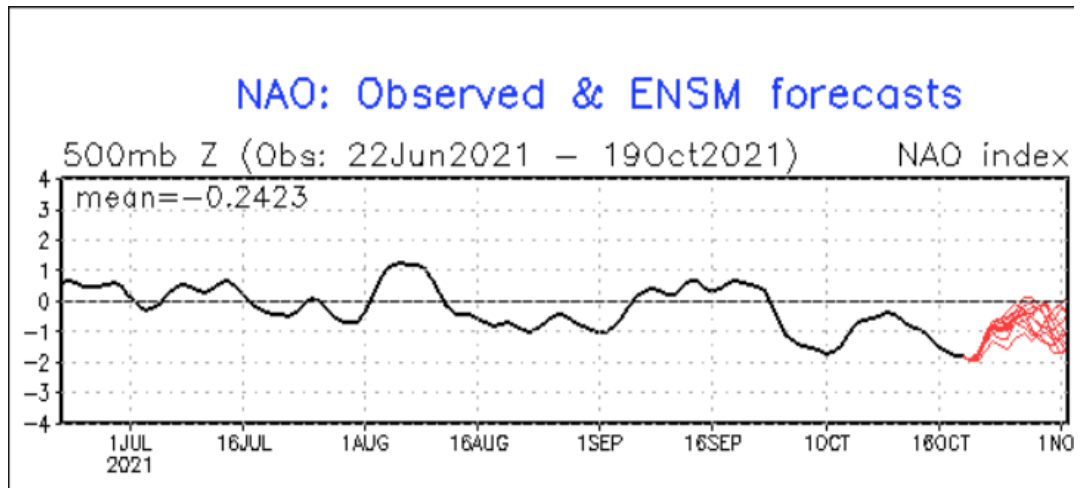
From the beginning of the year until September 30, 258 mm of rain or snow fell in just 40 days, compared to 631 mm in 56 days of the forty-year average.

It was therefore a month substantially devoid of any significant meteo-climatological

All this despite the fact that the NAO signal remained at moderately negative values (therefore on average favorable in at least variable weather conditions) in the first and last week of the month and then abruptly returned to slightly positive values in the two central weeks. (Fig.1). As previously anticipated, therefore, the weather was characterized by a remarkable atmospheric stability if we exclude the passage of a mild cold drop at high altitude which, however, did not bring any noteworthy phenomenologies. In essence, the MAXIMUM DAILY SUM OF THE MONTH was 1 MM ON DAY 8 (fig. 3)

In the face of the severe lack of rainfall described above, the temperatures remained around the average for the period, without evident phases of intense heat but rather assumed a linear behavior, without showing a natural gradual decline typical of this month and due to the decreasing sunshine.

Figure 1 - Normalised daily NAO signal



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Figure 2 - ground and geopotential map at 500 hPa, relative to 12Z on September 14th

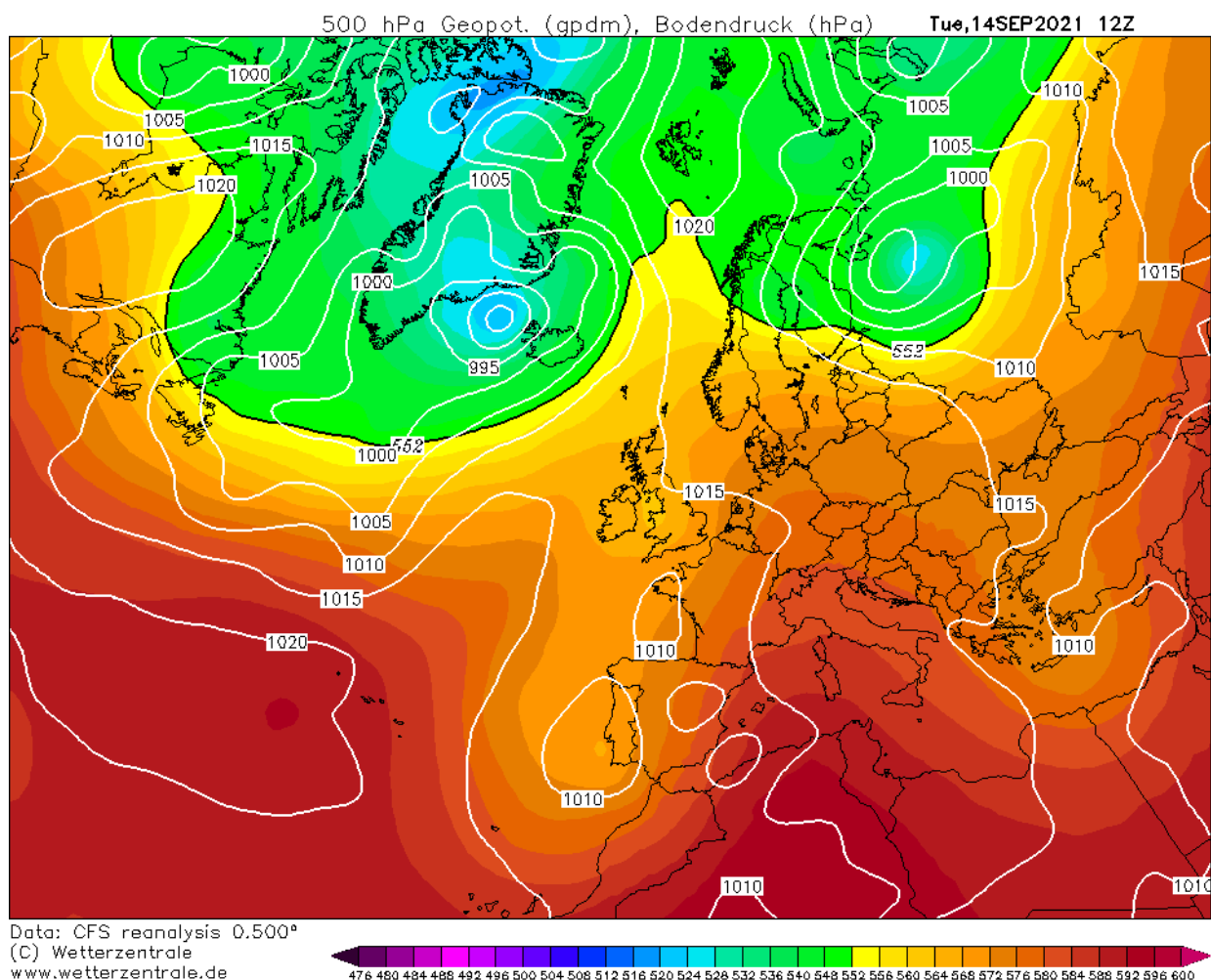
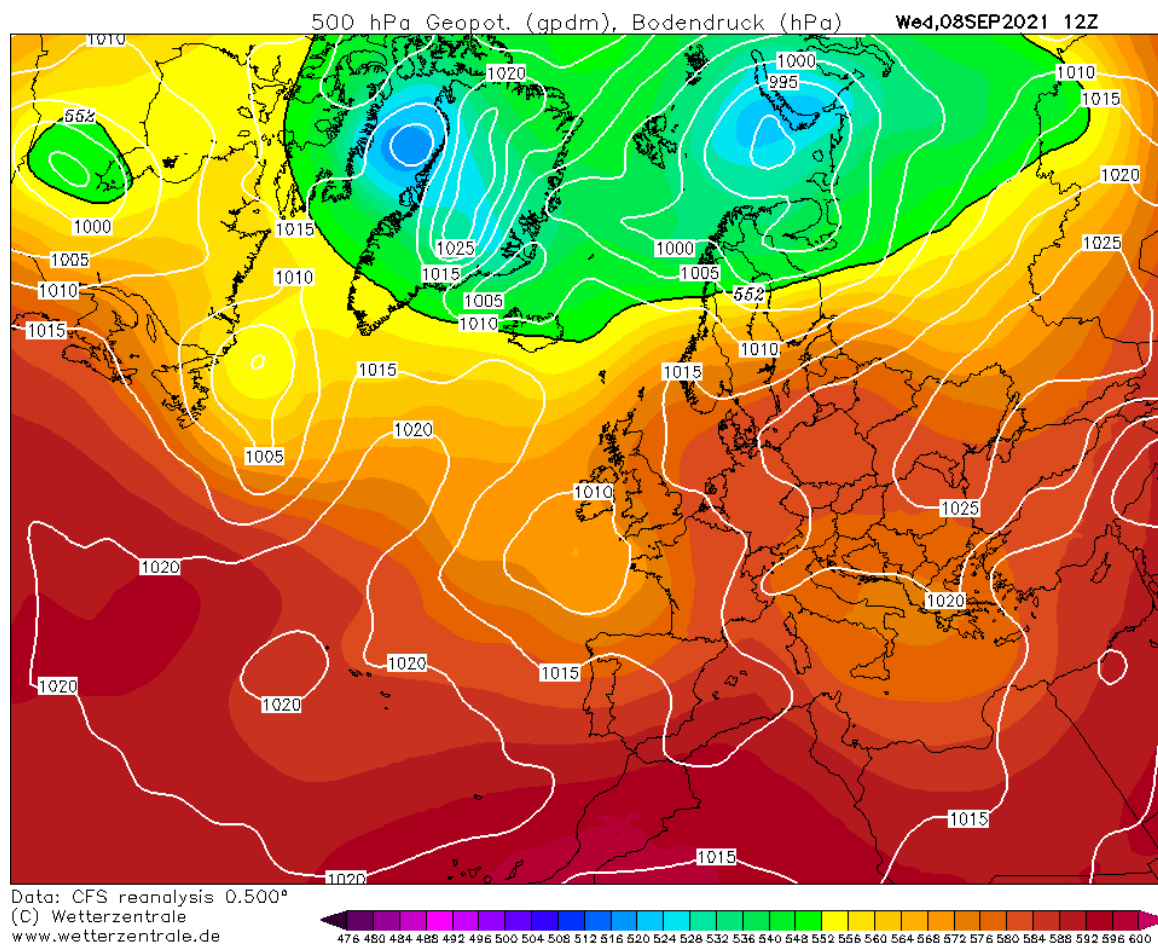


Figure 3 - ground and geopotential map at 500 hPa, relative to 12Z on September 8th



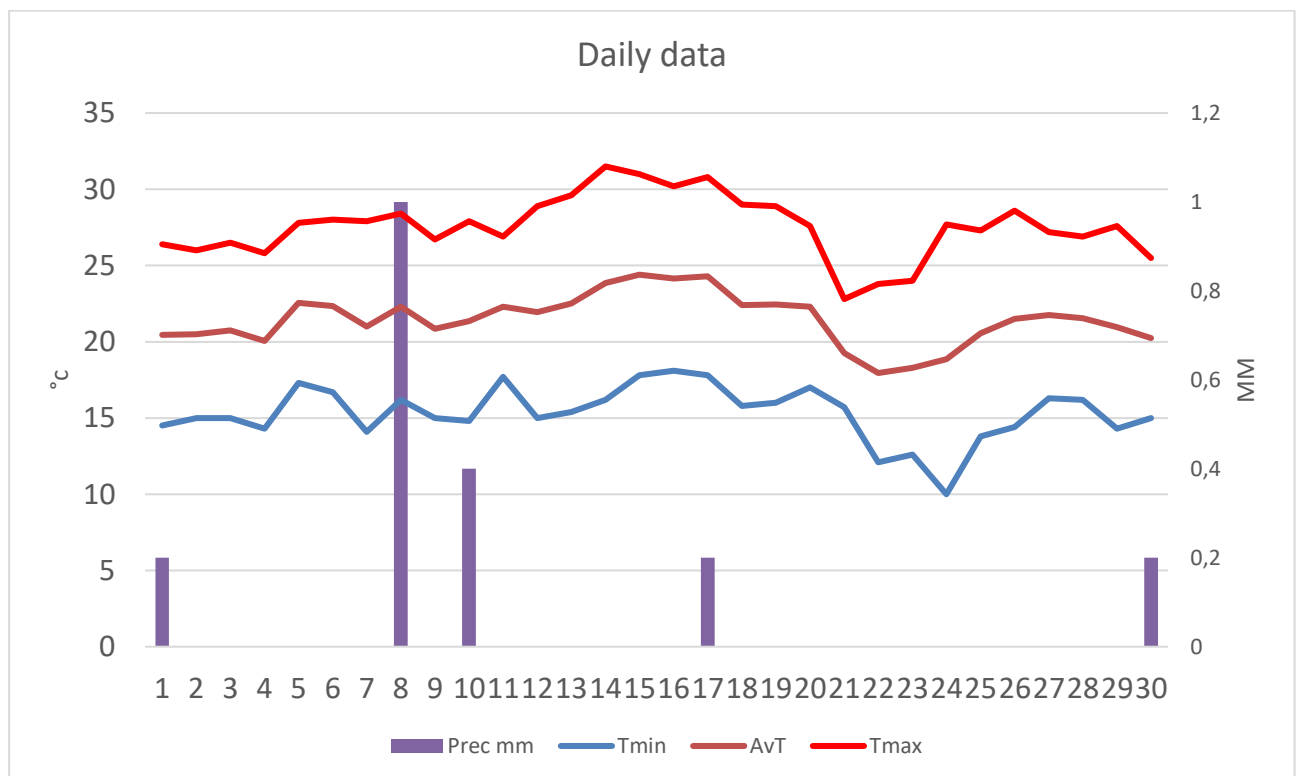
From the analysis of the complete thermometric data (table 1 and figure 4), it can be observed that the average monthly temperature was about 21.5 ° C, the average minimum and maximum respectively of 15.3 ° C and 27.6 ° C; consequently the average daily temperature range was found to be about 12.5 ° C, about one and a half degrees higher than the climatic average of about 10.9 ° C.

The absolute minimum temperature was 10 ° C on day 24 while the absolute maximum was recorded on day 14, with 31.5 ° C. Both tropical nights and very hot days were completely absent, confirming a thermal month not characterized by thermal outliers.

Compared to the monthly climatological average calculated for the meteorological station of Ascoli Piceno and relating to the period 1981-2015 - of about 21 ° C, - a surplus of 0.5 ° C is observed, slightly more marked in the maximum ones. If we consider the monthly average data of the last fifteen years and related to the station under analysis, we observe an identity in the average values.

With regard to rainfall, the monthly cumulative, as previously highlighted, touched 2 mm distributed over a single day with a liquid cumulative or equivalent from the solid > 1mm. Considering a monthly climatic average referred to the Ascoli Piceno weather station is about 64 mm, the monthly cumulative recorded shows a total deficit compared to the climatic one, with the effects on climatology but above all on the physical environment (e.g. rivers under the *minimum in-stream flow* , surface water tables almost completely dry, etc.) definitely worrying. Figure 4 and Table 1 show the thermo-pluviometric graph and the daily climatic data with the respective monthly averages.

Figure 4 - Graph of daily thermo - meteoric data



Y	M	D	Tmin	AvT	Tmax	Prec mm	RA	TS	TRN	VHD
2021	9	1	14,5	20,5	26,4	0,2				
2021	9	2	15,0	20,5	26,0	0				
2021	9	3	15,0	20,8	26,5	0				
2021	9	4	14,3	20,1	25,8	0				
2021	9	5	17,3	22,6	27,8	0				
2021	9	6	16,7	22,4	28,0	0				
2021	9	7	14,1	21,0	27,9	0				
2021	9	8	16,2	22,3	28,4	1	*			
2021	9	9	15,0	20,9	26,7	0				
2021	9	10	14,8	21,4	27,9	0,4				
2021	9	11	17,7	22,3	26,9	0				
2021	9	12	15,0	22,0	28,9	0				
2021	9	13	15,4	22,5	29,6	0				
2021	9	14	16,2	23,9	31,5	0				
2021	9	15	17,8	24,4	31,0	0				
2021	9	16	18,1	24,2	30,2	0				
2021	9	17	17,8	24,3	30,8	0,2				
2021	9	18	15,8	22,4	29,0	0				
2021	9	19	16,0	22,5	28,9	0				
2021	9	20	17,0	22,3	27,6	0				
2021	9	21	15,7	19,3	22,8	0				
2021	9	22	12,1	18,0	23,8	0				
2021	9	23	12,6	18,3	24,0	0				
2021	9	24	10,0	18,9	27,7	0				
2021	9	25	13,8	20,6	27,3	0				
2021	9	26	14,4	21,5	28,6	0				
2021	9	27	16,3	21,8	27,2	0				
2021	9	28	16,2	21,6	26,9	0				
2021	9	29	14,3	21,0	27,6	0				
2021	9	30	15,0	20,3	25,5	0,2				
AVER			15,3	21,5	27,6	2,0	1	0	0	0
AVER 81-17			15,0	21,0	26,9	67	6,3			
AVER 03-19				21,5						

Table 1 - Daily summary of available meteorological data. LEGEND: Tmin: minimum temperature; avt: average temperature; Tmax: maximum temperature; prec. mm: daily precipitation; monthly summation total precipitation; RD: days with precipitation > 1mm; TS: rainy days, TRN: tropical nights; VHD: very hot days (Tmax>35 C)