

# METEOCLIMATIC REPORT AND ACTIVITIES ANNEXED TO THE RURITAGE PROJECT

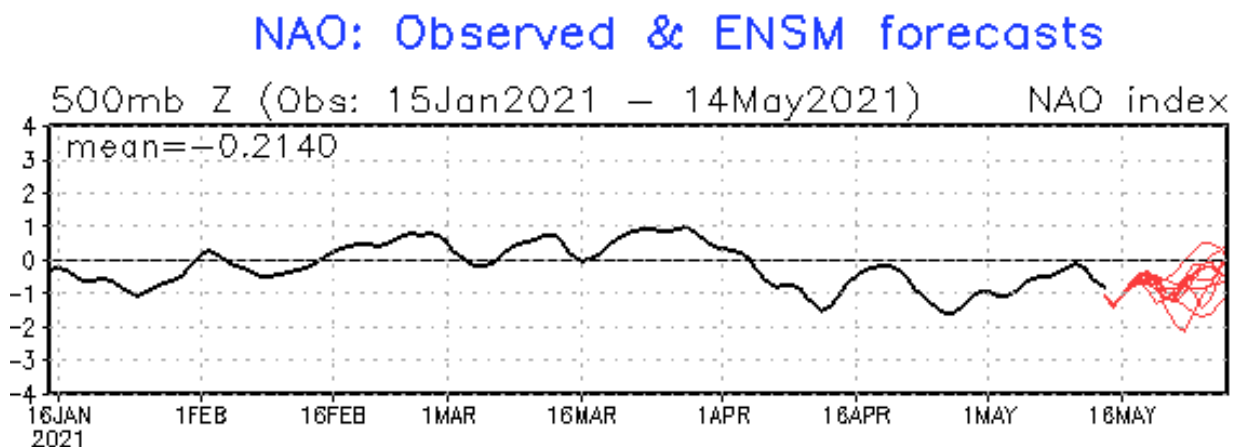
MARCH 2021

MARCH showed a more typical behavior of late winter, with extremely variable weather, frequent temperature changes, the first thunderstorm of the season and a short "late" snowfall. The thermal signal was overall lower than the climatic average as well as the precipitations which, although frequent (10 days including those with a sum <1 mm), on one occasion were noteworthy - 30 mm on day 9.

The NAO signal remained constantly positive despite even significant fluctuations which temporarily resulted in a neutral signal. (fig.1)

Contrary to what was recorded in the first two months of the winter season, temperatures remained significantly above - by almost two degrees - the thirty-year seasonal averages - while they almost coincided with those of the last fifteen years; already in the first week of the month - climatologically the third coldest of the meteorological year - the maximum values of 20 ° C were spent. The days of frost were rare and concentrated in the short cold phase of mid-month, with an ice day (with  $t_{max} < 0$  ° C) at the highest altitudes of the municipal area recorded on day 13

Figure 1 - standardized monthly NAO signal



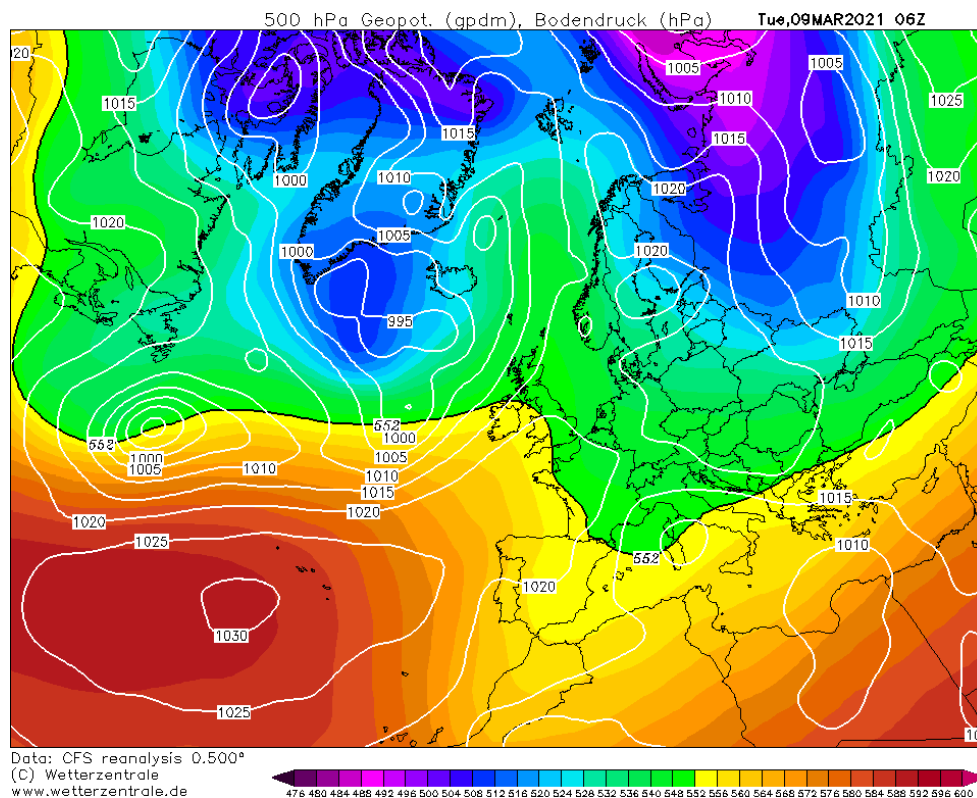
As happened in the first two months of the winter season just ended, the temperatures remained rather below - by more than 1 ° C - the thirty-year seasonal averages ; in particular, the minimum values soi are constantly kept on low values - rarely higher than 5 ° C in the valley floor - but paradoxically there have been no days of frost altogether.

With regard to the meteoric signal, the monthly sum has just exceeded 45 mm, concentrated on 7 rainy days and 3 days with precipitation < 1mm.

The monthly atmospheric dynamics was characterized by a continuous coming and going of polar jet, often even deep and such as to allow the formation of several low pressure on the northern Mediterranean.

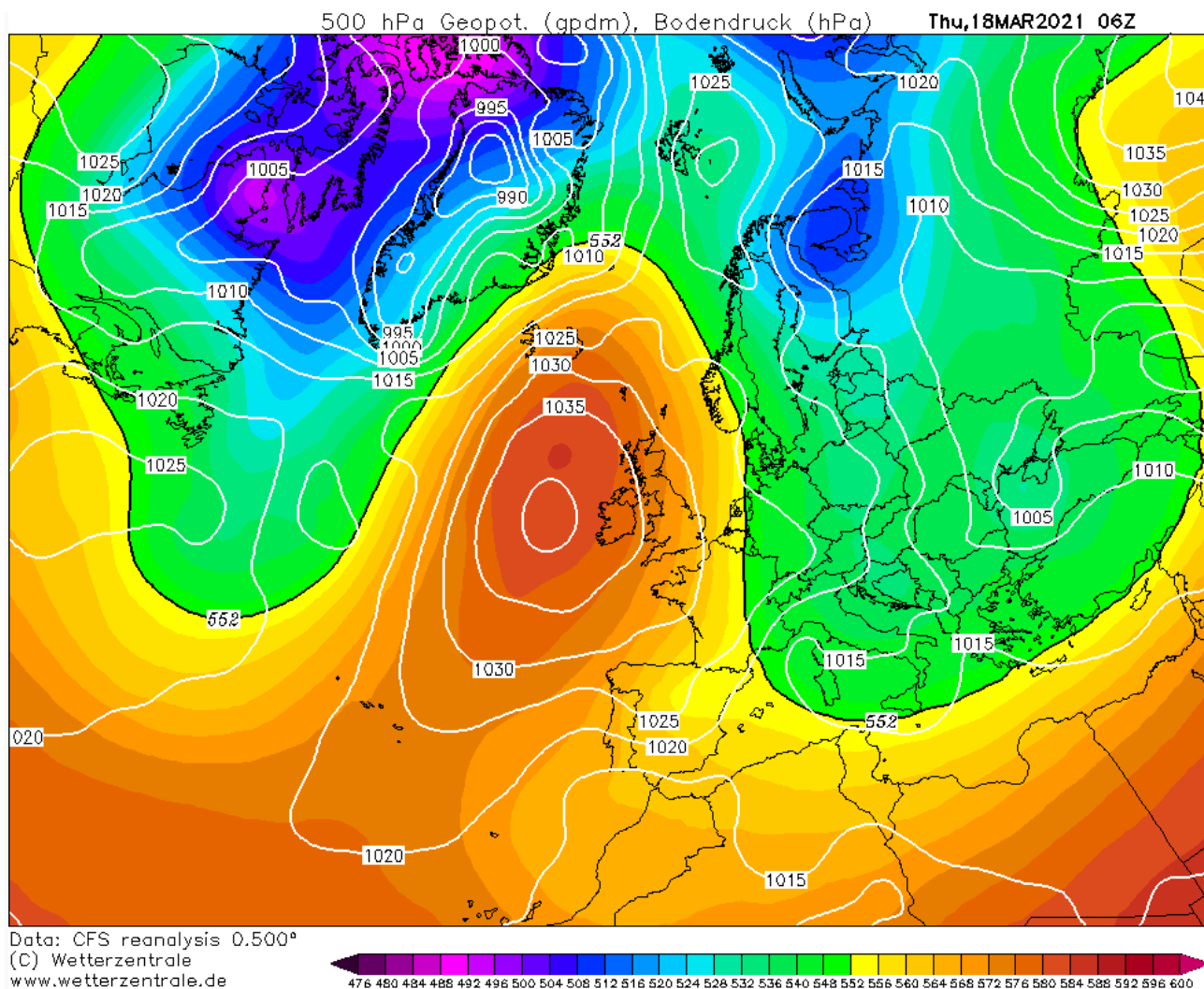
However, this signal brought little rainfall, however concentrated in the period 5-20 of the month, while the last decade showed more stable weather with temperatures gradually increasing until reaching decidedly high values at the end of the month.

The intense event - thunderstorm - of March 9 (fig. 2) with a rain sum of over 30 mm in just over an hour, was determined by a decisive and rapid destabilization of the air column, deriving from the contrast between sirocco on the ground and cold advection of intermediate polar origin at high altitude linked to a deep trough.



**Figure 2** - ground map and geopotential 500 hPa, relative at 06AM of Mars 9th

A second arctic trough, filled with very cold air caused a brief “late” snow episode above 200 meters, in the early hours of the 18th, with contributions of a few cm in the highest portion of the municipal area (fig. 3).



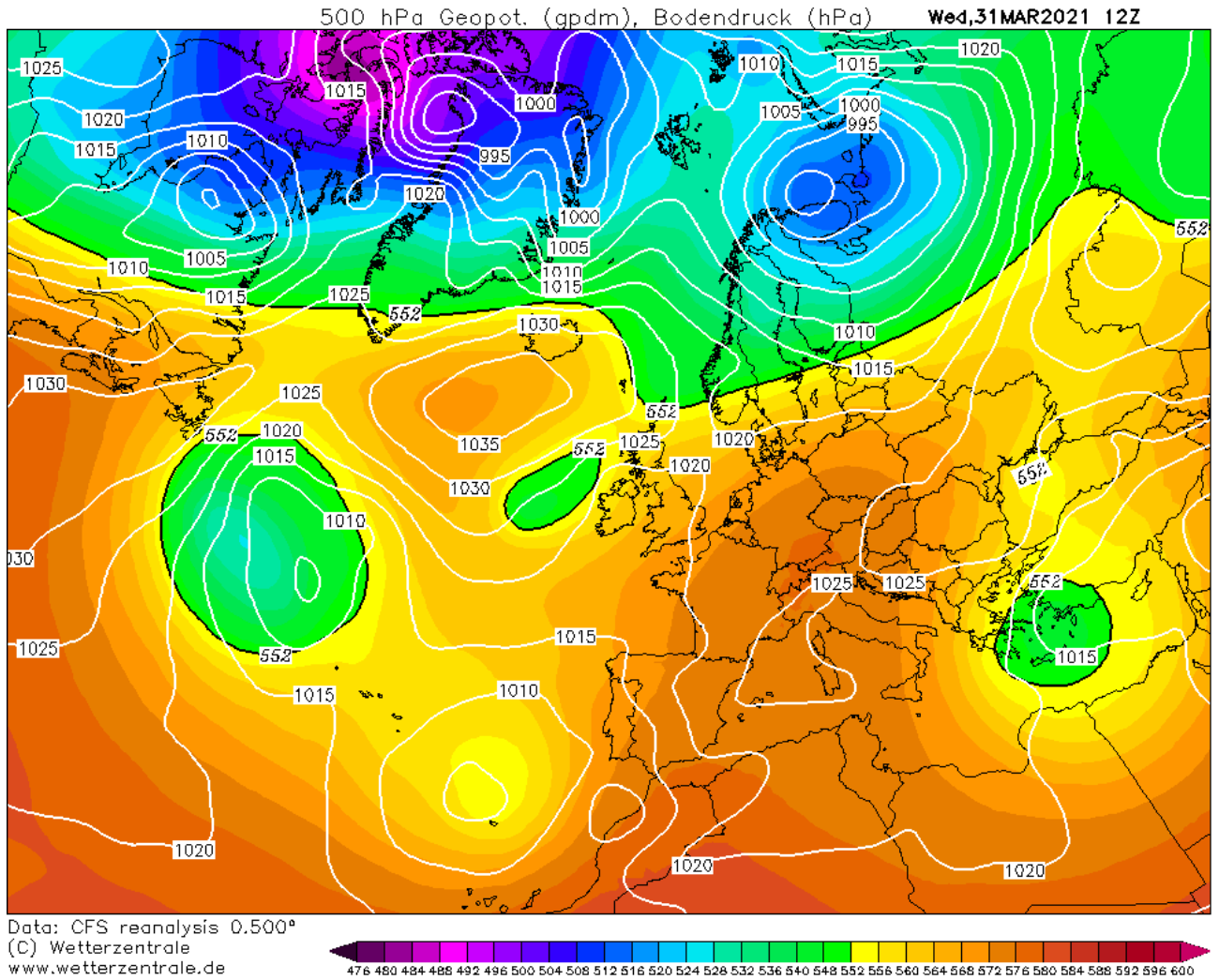
**Figure 3-** ground map and geopotential 500 hPa, related to 06 AM on Mars 18th

Following this drop of cold air, the weather gradually improved while remaining cool and variable.

High pressure conditions at all tropospheric levels have occurred continuously only in the last week (fig.4), when a promontory of African matrix has extended to the entire peninsula and right on the coast of the Baltic Sea, with a marked increase in thermal values.

From the analysis of the thermometric data, complete (Table 1 and Figure 4), it can be observed that the average monthly temperature was of approximately 9.1 C, - even of two tenths of a degree lower than that of February, the average minimum and maximum respectively of 3,6 C and 14.5 C respectively; as a result the average daily temperature range

was about 11 C, about a degree higher than the average climate with the average climate - of about 10.2 C.



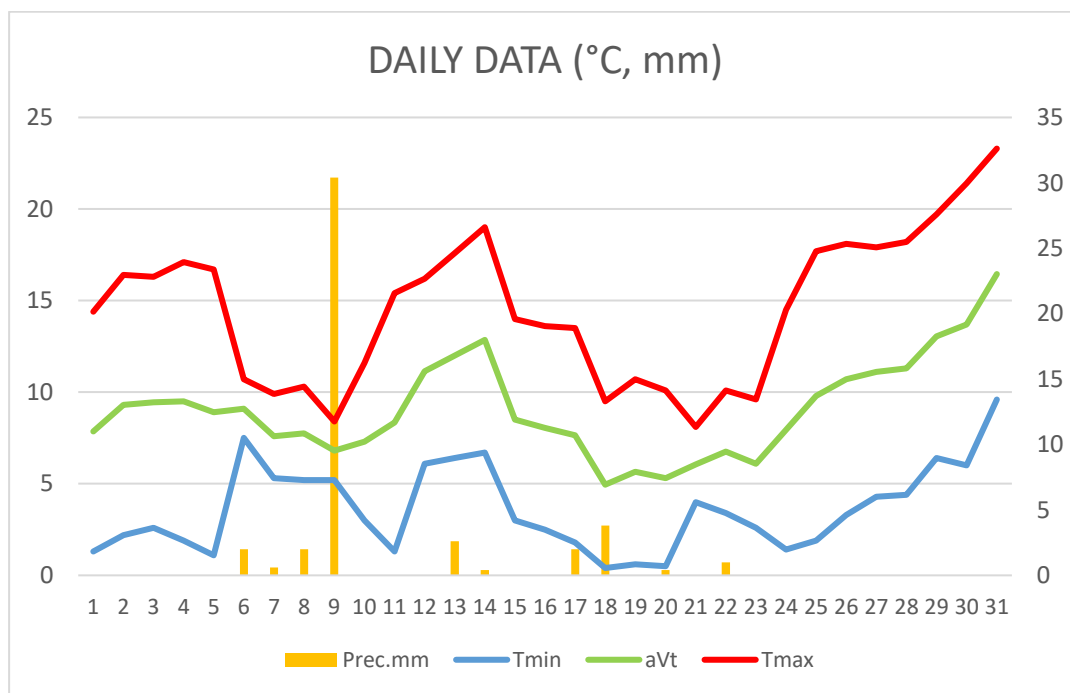
**Figure 4-** ground map and geopotential 500 hPa, related to 12 AM on Mars 31th

The absolute minimum temperature was 0.4 ° C on day 18 and the absolute maximum was recorded on day 31, with 23.3 ° C.

Compared to the monthly climatological average calculated for the meteorological station of Ascoli Piceno and related to the period 1981-2015 - of about 10.2° C, - there is a moderate negative deviation of about 1.1° C, higher in the minimum values (1.5° C) compared to the minimum ones - a little over half a degree. If we consider the average monthly data of the last 15 years and relating to the station under analysis, the thermal deficit amounts to more than two degrees.

With regard to precipitation, the monthly cumulate has, as previously highlighted, reached 45 mm distributed over 7 days with liquid cumulate or equivalent from the solid > 1mm. They consider a monthly climate average for the meteorological station of Ascoli Piceno is about 70 mm, the cumulative monthly recorded shows a deficit in the cumulative of 37%. It should be noted that on the rainiest day, the 9th, 75% of the entire monthly total fell.

Figure 5 and Table 1 show the thermo-pluviometric graph and the daily climatic data with the respective monthly averages.



**Figure 5** - meteoclimatic daily data

Y	M	D	Tmin	aVt	Tmax	Prec.mm	RD	SD	ID	TS
2021	3	1	1,3	7,9	14,4	0				
2021	3	2	2,2	9,3	16,4	0				
2021	3	3	2,6	9,5	16,3	0				
2021	3	4	1,9	9,5	17,1	0				
2021	3	5	1,1	8,9	16,7	0				
2021	3	6	7,5	9,1	10,7	2 *				
2021	3	7	5,3	7,6	9,9	0,6				
2021	3	8	5,2	7,8	10,3	2 *				
2021	3	9	5,2	6,8	8,4	30,4 *				*
2021	3	10	3	7,3	11,6	0				
2021	3	11	1,3	8,4	15,4	0				
2021	3	12	6,1	11,2	16,2	0				
2021	3	13	6,4	12,0	17,6	2,6 *				
2021	3	14	6,7	12,9	19	0,4				
2021	3	15	3	8,5	14	0				
2021	3	16	2,5	8,1	13,6	0				
2021	3	17	1,8	7,7	13,5	2 *				
2021	3	18	0,4	5,0	9,5	3,8 *		*		
2021	3	19	0,6	5,7	10,7	0				
2021	3	20	0,5	5,3	10,1	0,4				
2021	3	21	4	6,1	8,1	0				
2021	3	22	3,4	6,8	10,1	1 *				
2021	3	23	2,6	6,1	9,6	0				
2021	3	24	1,4	8,0	14,5	0				
2021	3	25	1,9	9,8	17,7	0				
2021	3	26	3,3	10,7	18,1	0				
2021	3	27	4,3	11,1	17,9	0				
2021	3	28	4,4	11,3	18,2	0				
2021	3	29	6,4	13,1	19,7	0				
2021	3	30	6	13,7	21,4	0				
2021	3	31	9,6	16,5	23,3	0				
<b>AVER</b>			<b>3,6</b>	<b>9,1</b>	<b>14,5</b>	<b>45,2</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>1</b>
aver 81-15			5,1	10,2	15,2	70	6,8			
aver 03-19				11,3						

**Table 1 – daily summary of available meteorological data.** LEGEND: Tmin: minimum temperature; avt: average temperature; Tmax: maximum temperature; prec. mm: daily precipitation; monthly sum of total precipitation; RD: days with precipitation > 1mm, SD : days with snow; ID: days of frost (Tmin < 0°C).