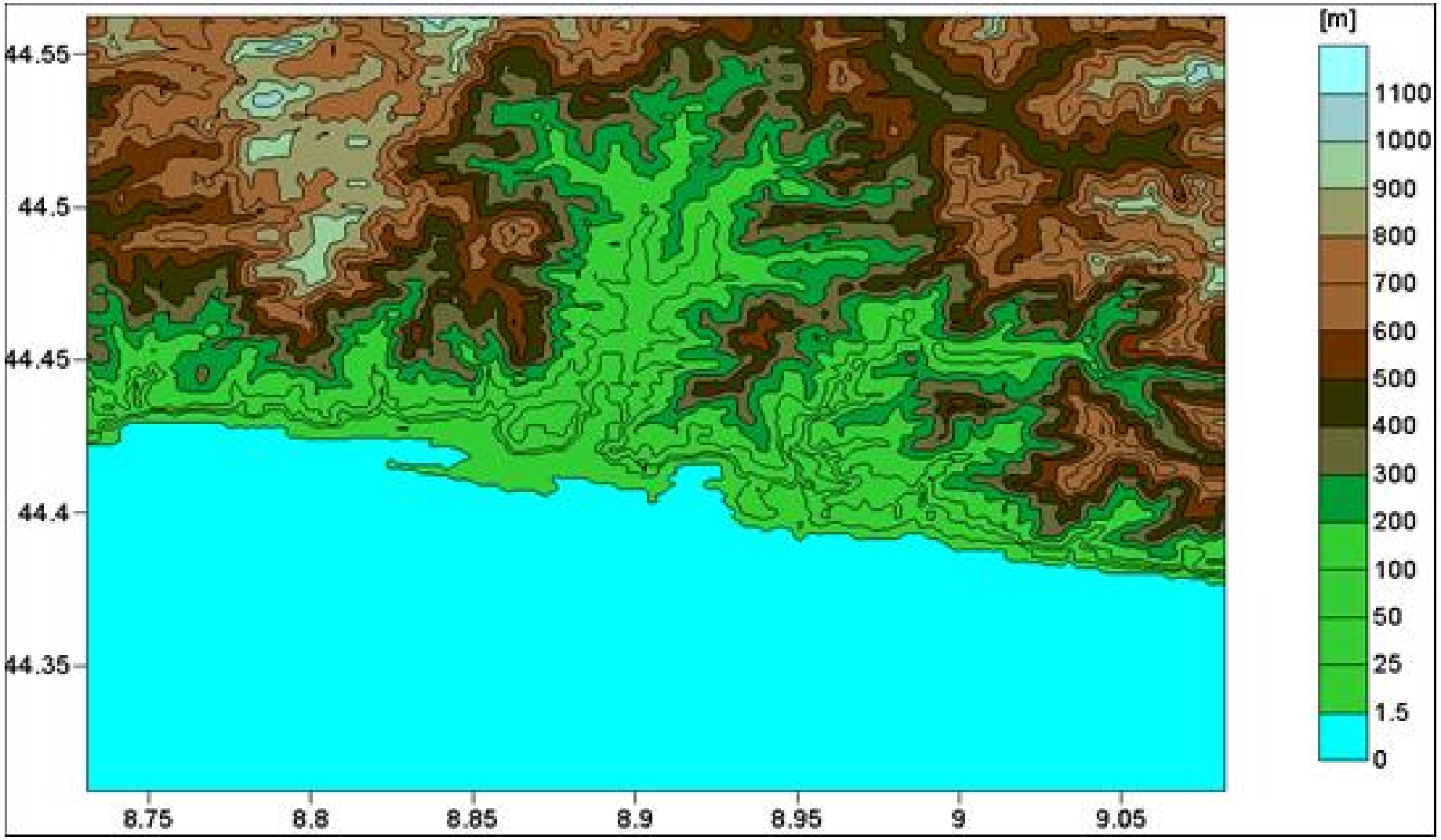
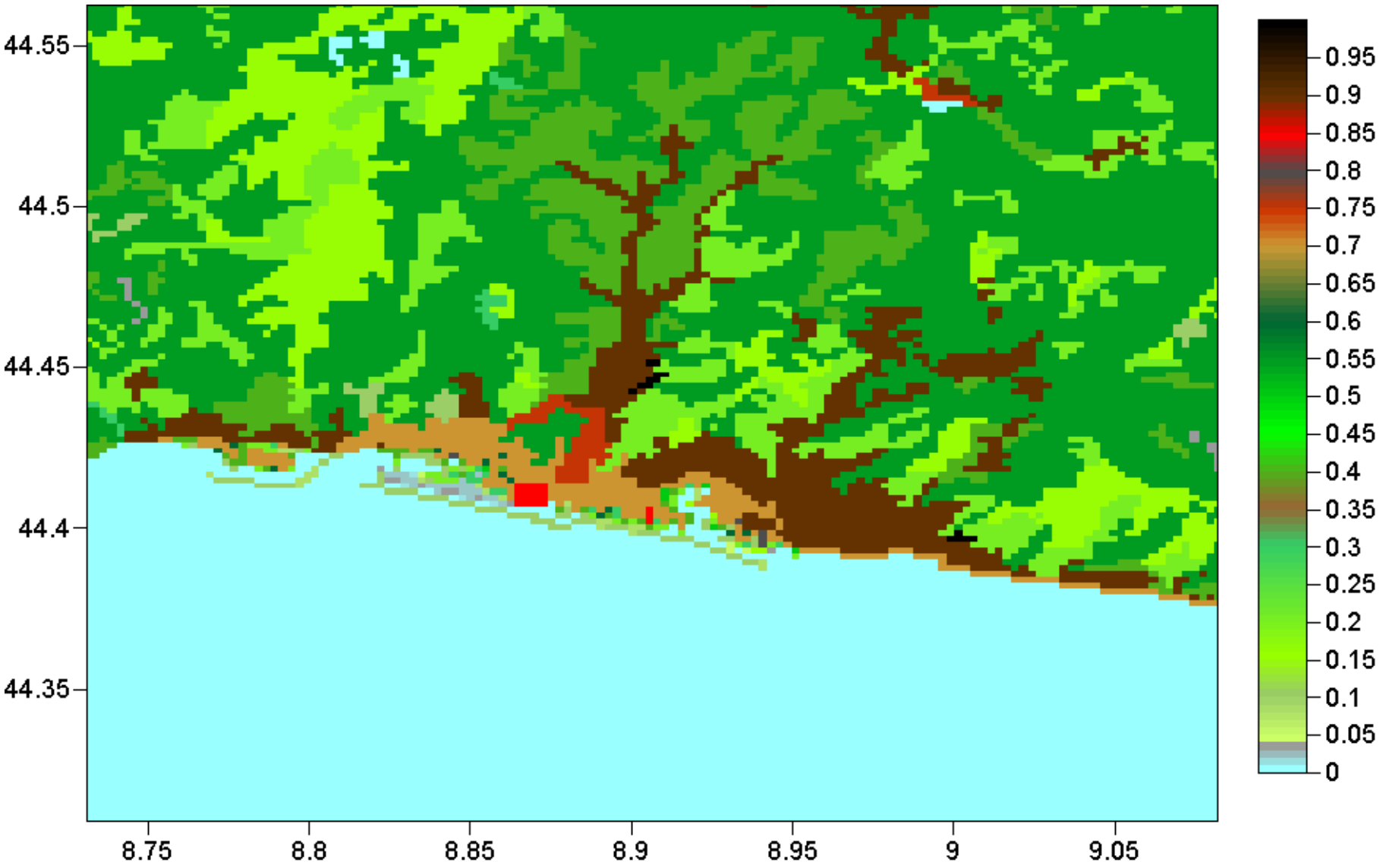
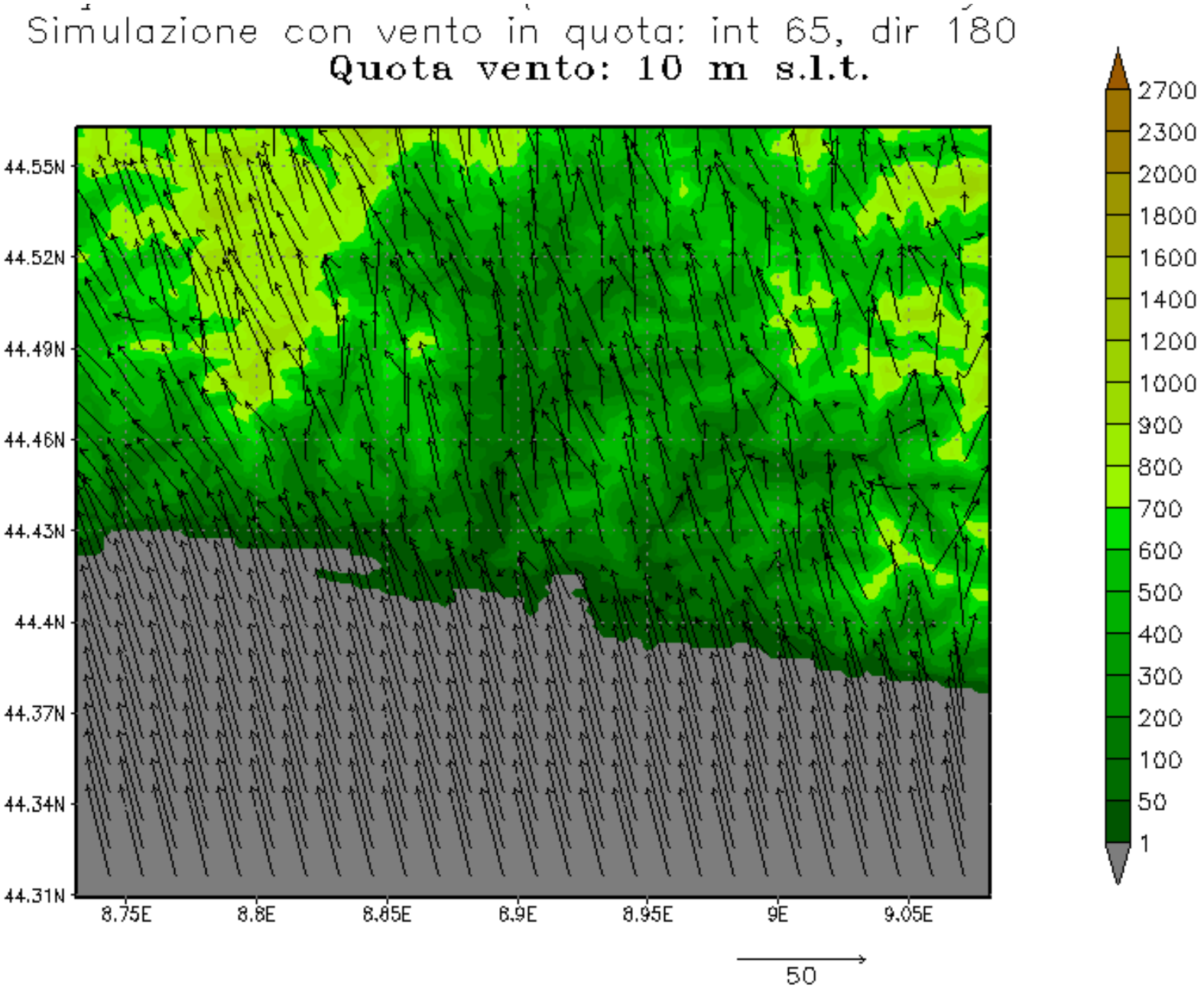
Anemometer of the Airport of Genova



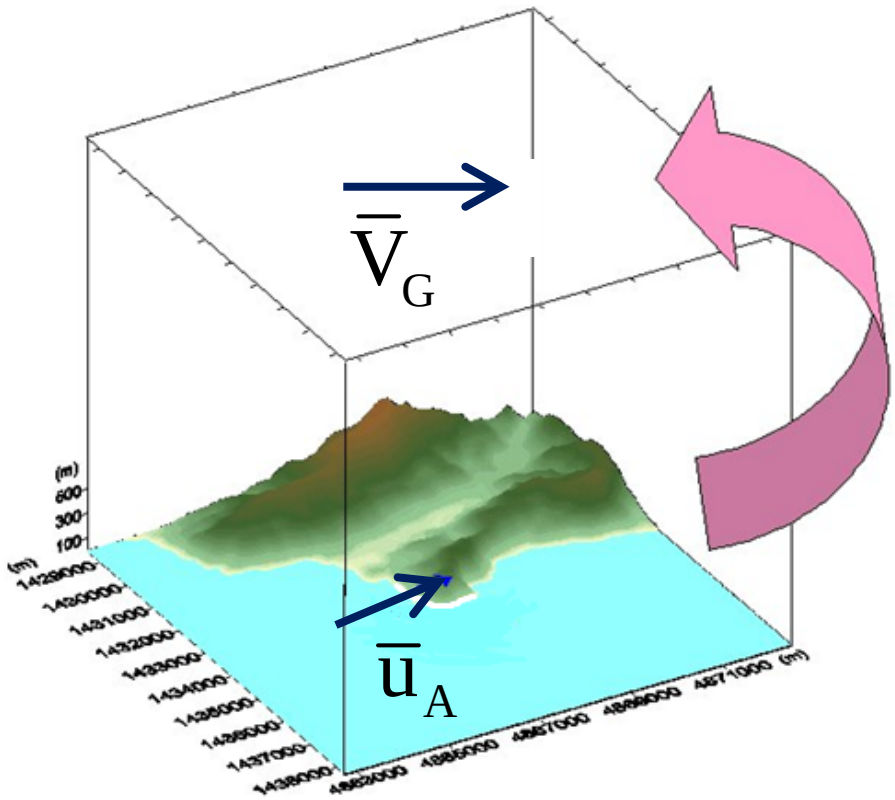
Topographical model of the simulation domain



Roughness length (m) model of the simulation domain



Transformation of measurements in a grid domain



$$\overline{V}_G = \frac{u_*}{k}\sqrt{\left[\ell n\left(\frac{u_*}{|f| z_{0ref}}\right) - A\right]^2 + B^2}$$

$$\Downarrow$$

$$u_*$$

$$\Downarrow$$

$$\overline{u}_{ref} = \frac{u_*}{k}\ell n\left(\frac{z_{ref}}{z_{0ref}}\right)$$

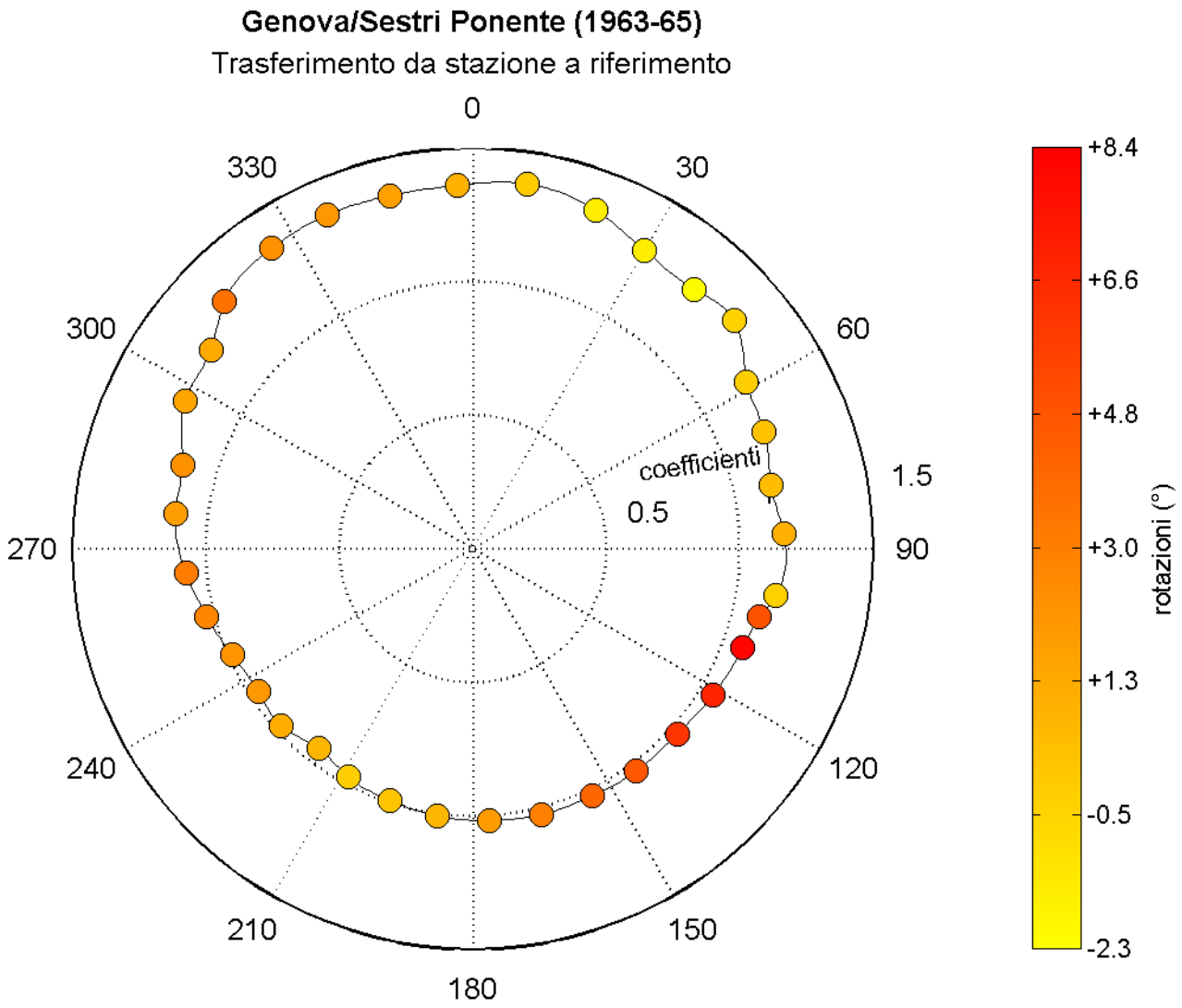
$$\overline{u}_{ref} = k_{ref}\,\overline{u}_A; \quad k_{ref} = \frac{u_*}{k}\ell n\left(\frac{z_{ref}}{z_{0ref}}\right)\frac{1}{\overline{u}_A}; \quad k_{ref} = \text{transfer coefficient}$$

Transformation of measurements to the reference site

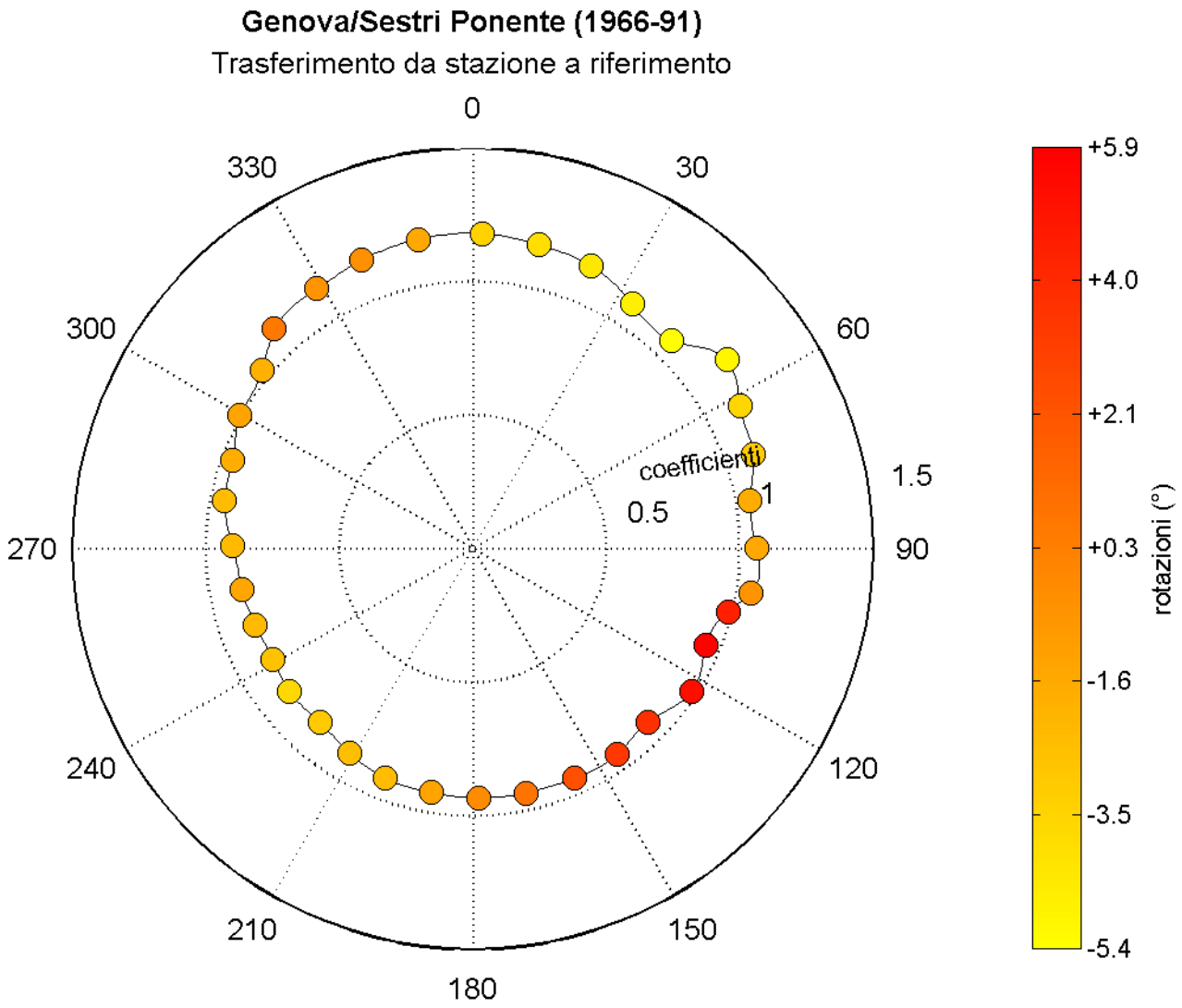
TOTAL NUMBER OF PROCESSED VALUES 122549.
TOTAL NUMBER OF ZERO VALUES 19275.

SPEED	SECTOR												
	1- 3	4- 6	7- 9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	1-37
0- 1	355.	237.	93.	58.	104.	133.	149.	130.	68.	60.	75.	237.	1704.
1- 2	2170.	3487.	1016.	508.	837.	1870.	1555.	1798.	873.	363.	308.	1020.	15818.
2- 3	1811.	3894.	1095.	564.	1439.	2577.	1417.	1278.	734.	252.	184.	589.	15903.
3- 4	116.	4586.	1030.	711.	1938.	1906.	617.	454.	339.	146.	104.	312.	13701.
4- 5	1460.	4820.	794.	675.	1963.	1377.	457.	198.	153.	67.	89.	302.	12488.
5- 6	1705.	4724.	502.	657.	1725.	869.	331.	125.	67.	31.	97.	377.	11346.
6- 7	1783.	4877.	353.	687.	1564.	756.	303.	96.	40.	33.	74.	320.	10973.
7- 8	1589.	3977.	201.	518.	883.	417.	220.	56.	25.	13.	47.	264.	8268.
8- 9	1057.	2717.	119.	386.	589.	229.	146.	40.	10.	6.	31.	163.	5531.
9-10	717.	1798.	61.	219.	332.	135.	115.	37.	8.	6.	16.	108.	3571.
10-11	386.	974.	27.	140.	178.	80.	66.	21.	1.	2.	9.	79.	1967.
11-12	211.	454.	6.	96.	110.	50.	35.	19.	4.	0.	8.	46.	1042.
12-13	127.	164.	3.	44.	58.	26.	22.	10.	3.	4.	5.	30.	498.
13-14	39.	70.	1.	24.	35.	12.	12.	3.	0.	1.	4.	17.	218.
14-15	28.	22.	0.	21.	17.	7.	6.	2.	0.	0.	5.	12.	120.
15-16	20.	4.	0.	8.	11.	1.	3.	1.	0.	0.	2.	15.	65.
16-17	4.	0.	0.	8.	2.	1.	2.	1.	0.	0.	0.	5.	23.
17-18	7.	2.	0.	2.	3.	0.	0.	0.	0.	0.	0.	5.	19.
18-19	5.	1.	0.	2.	0.	0.	0.	0.	0.	0.	1.	3.	12.
19-20	1.	0.	0.	0.	3.	0.	0.	0.	0.	0.	1.	1.	6.
20-21	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
DIR	14891.	36808.	5301.	5328.	11791.	10446.	5456.	4270.	2325.	984.	1060.	3905.	103274.

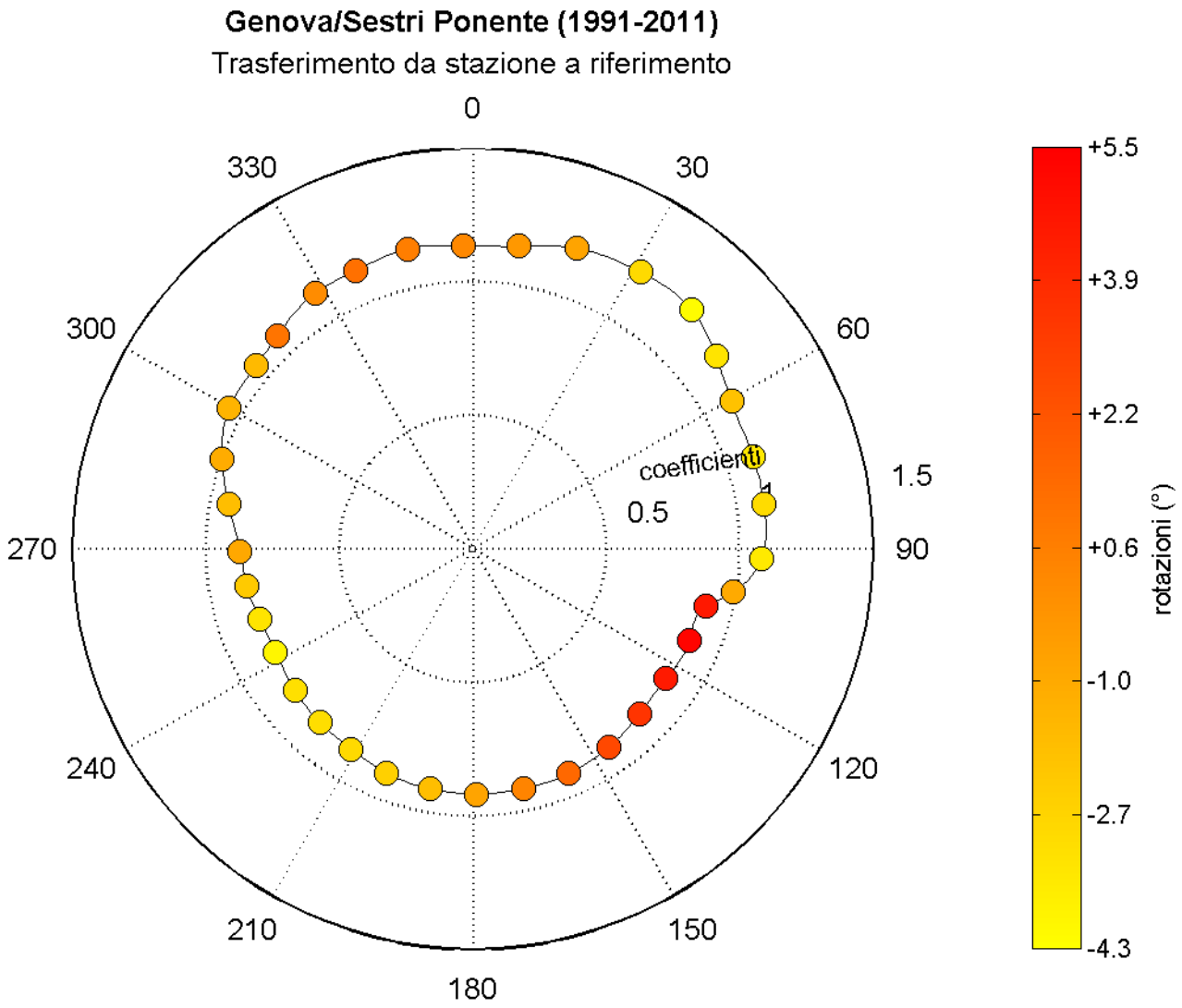
Dataset of the measurements at the anemometer



Transformation coefficient from the anemometer to the reference site



Transformation coefficient from the anemometer to the reference site



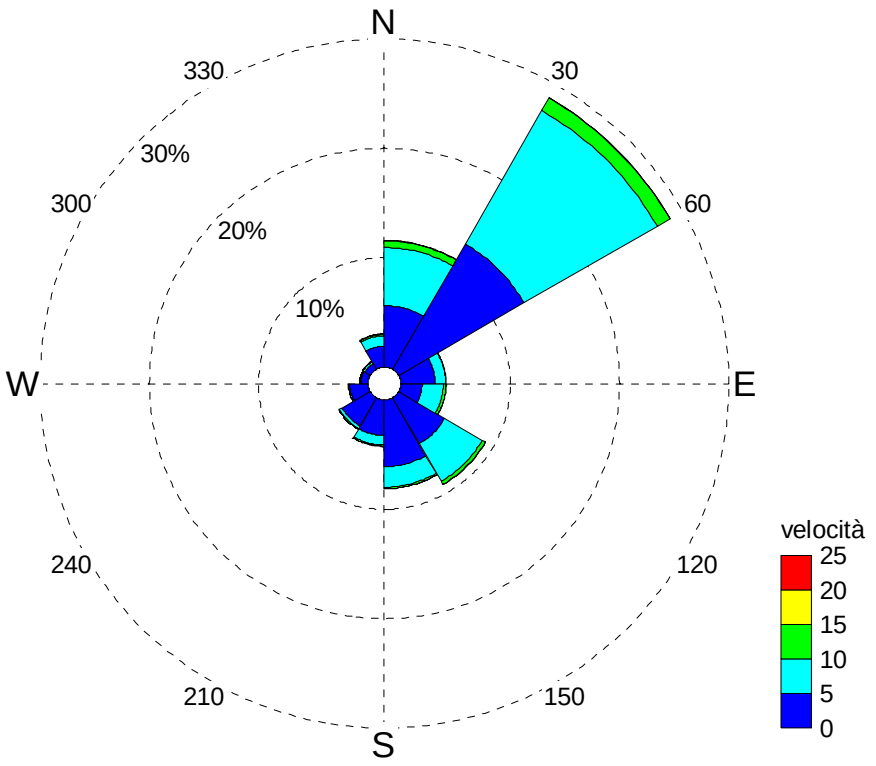
Transformation coefficient from the anemometer to the reference site

TOTAL NUMBER OF PROCESSED VALUES 122549.
TOTAL NUMBER OF ZERO VALUES 19275.

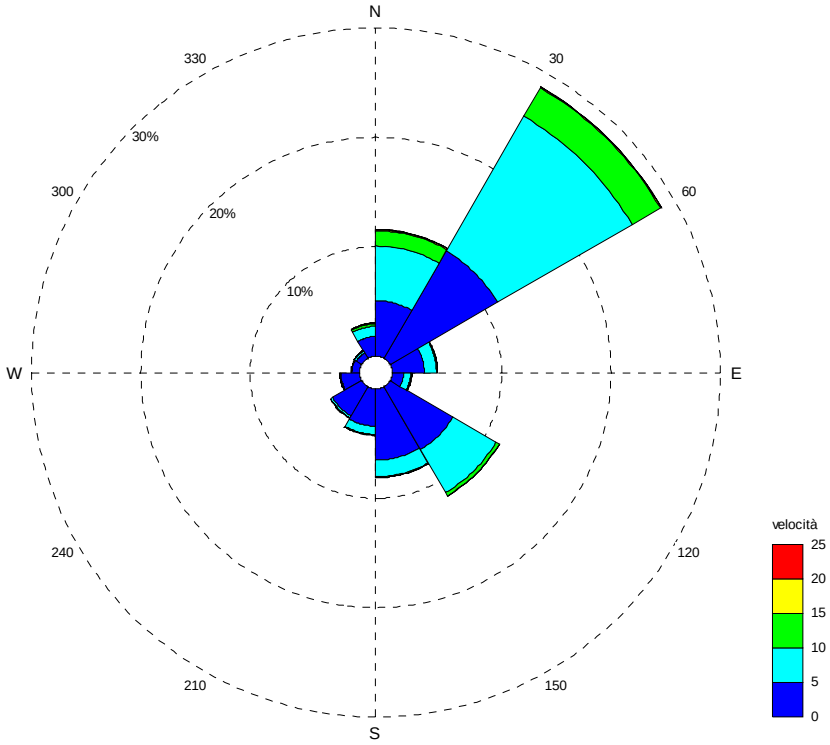
SPEED	SECTOR												
	1- 3	4- 6	7- 9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	1-37
0- 1	355.	237.	93.	66.	476.	974.	779.	1044.	449.	134.	75.	237.	4924.
1- 2	2085.	3487.	1016.	337.	1118.	1567.	1702.	1712.	901.	355.	304.	1012.	15609.
2- 3	1103.	2623.	1047.	313.	2150.	3124.	982.	725.	522.	212.	187.	406.	13419.
3- 4	1464.	4204.	703.	313.	2500.	1599.	527.	327.	256.	139.	73.	344.	12569.
4- 5	1503.	4009.	886.	290.	2284.	1102.	400.	143.	99.	63.	97.	312.	11254.
5- 6	1016.	3951.	587.	229.	2295.	795.	290.	123.	45.	22.	79.	277.	9842.
6- 7	1363.	4554.	261.	264.	1562.	591.	272.	63.	25.	30.	71.	241.	9433.
7- 8	1432.	4168.	307.	177.	959.	294.	206.	36.	12.	9.	56.	298.	8005.
8- 9	1439.	2581.	193.	121.	660.	182.	120.	44.	8.	8.	41.	204.	5667.
9-10	1175.	3013.	111.	67.	367.	104.	85.	22.	1.	4.	24.	188.	5207.
10-11	667.	1719.	52.	48.	221.	58.	40.	17.	5.	2.	16.	71.	2936.
11-12	515.	1171.	31.	21.	107.	23.	27.	7.	1.	1.	9.	94.	2026.
12-13	297.	544.	8.	10.	57.	18.	13.	2.	0.	2.	9.	66.	1027.
13-14	200.	287.	4.	11.	36.	10.	7.	3.	1.	1.	4.	33.	603.
14-15	120.	148.	0.	12.	19.	4.	2.	1.	0.	0.	3.	42.	352.
15-16	58.	66.	2.	5.	12.	1.	4.	0.	0.	1.	7.	19.	176.
16-17	40.	27.	0.	4.	1.	0.	0.	0.	0.	1.	2.	16.	91.
17-18	23.	13.	0.	0.	3.	0.	0.	0.	0.	0.	1.	12.	52.
18-19	13.	3.	0.	1.	3.	0.	0.	0.	0.	0.	0.	14.	34.
19-20	11.	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.	4.	17.
20-21	6.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	5.	12.
21-22	3.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	5.	10.
22-23	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.
23-24	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	4.
24-25	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.
25-26	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
DIR	14891.	36808.	5301.	2289.	14830.	10446.	5456.	4270.	2325.	984.	1060.	3905.	103274.

Simulated dataset at the reference site

Anemometer

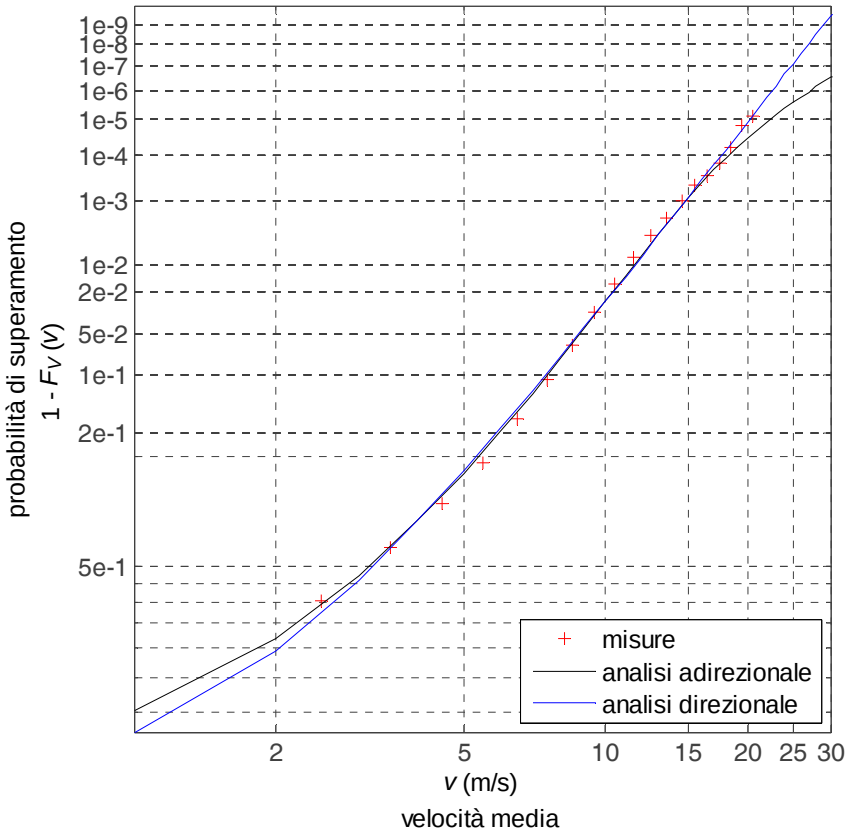


Reference site

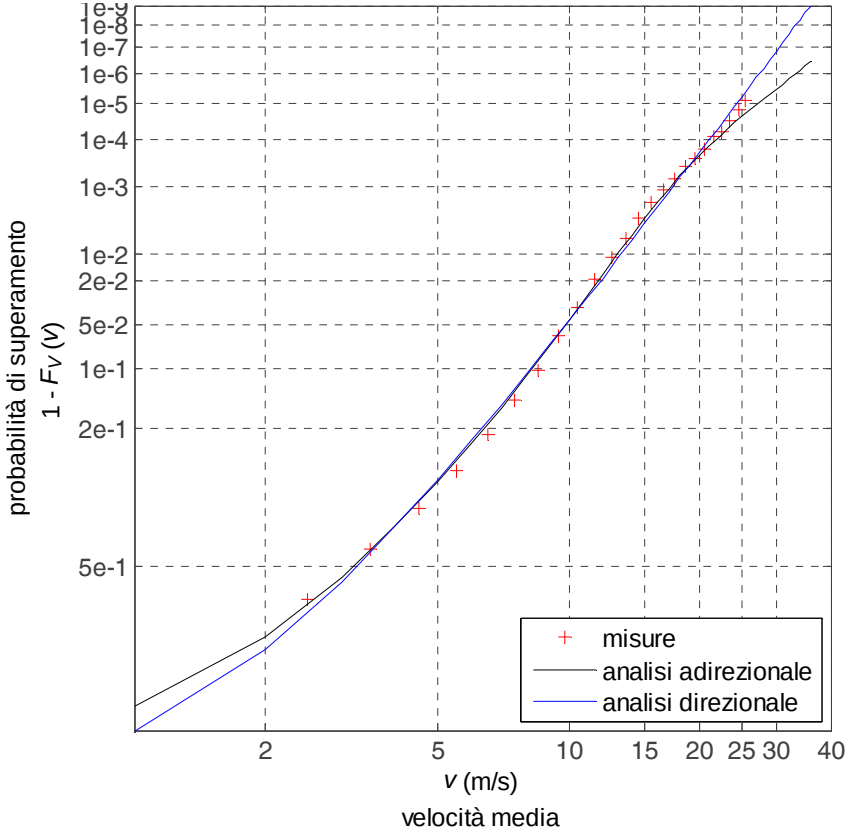


Frequency distribution

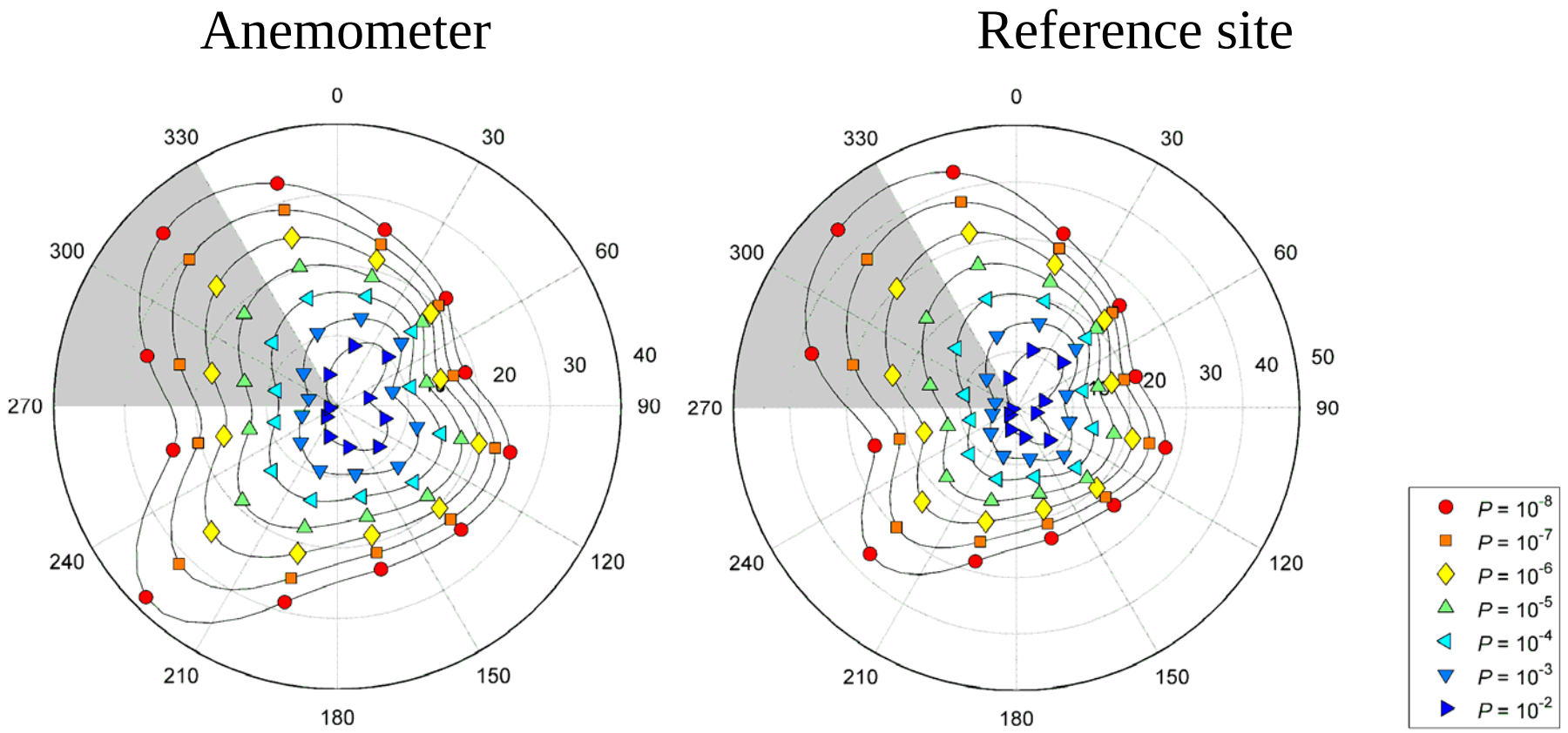
Anemometer



Reference site

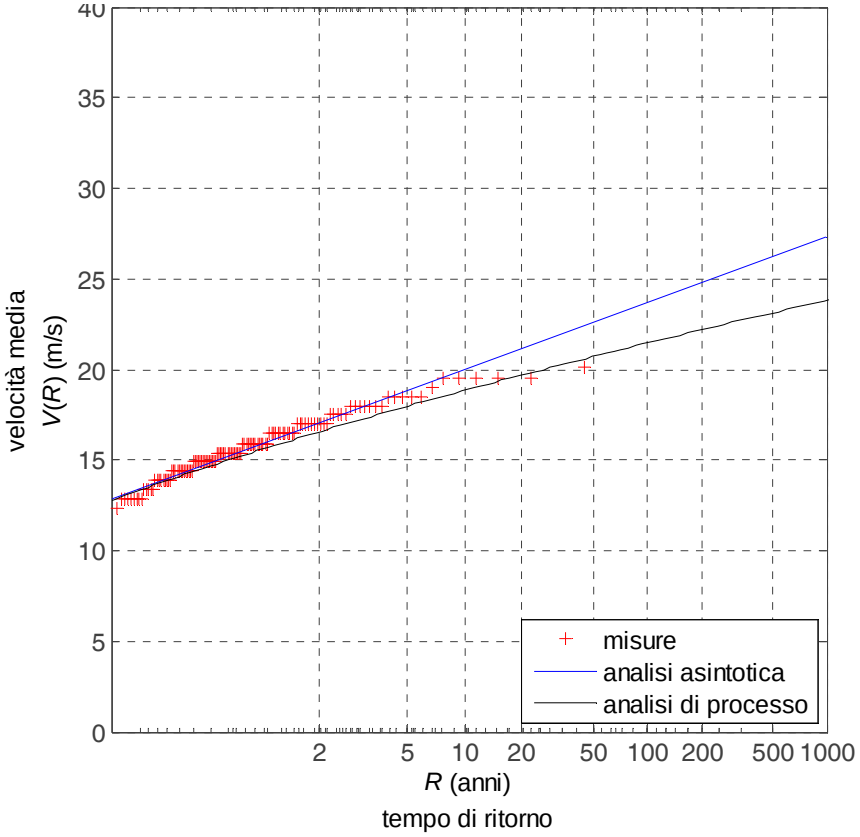


Exceedance probability

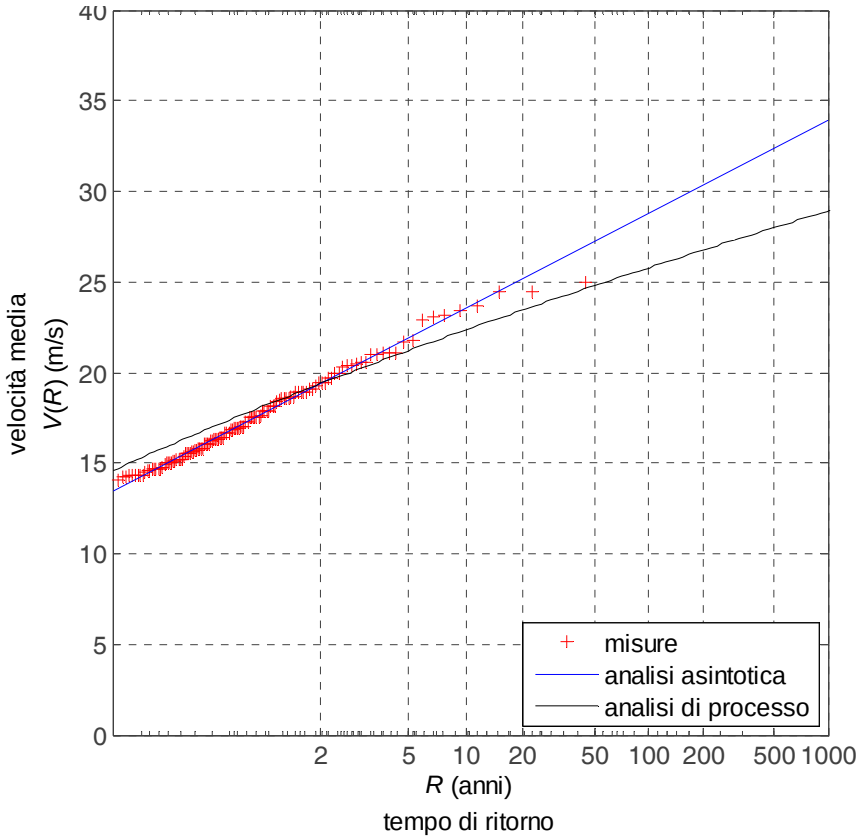


Polar exceedance probability

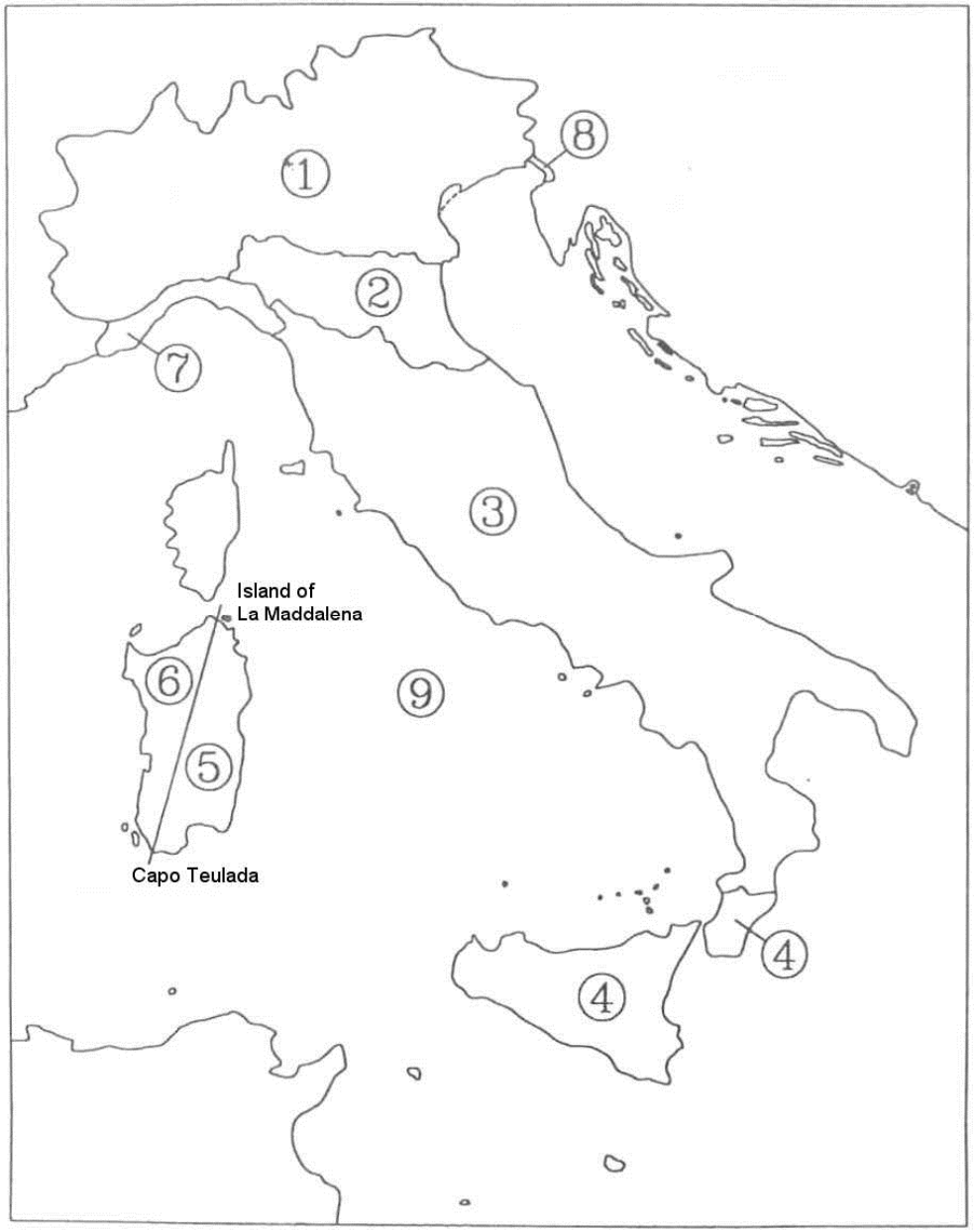
Anemometer



Reference site

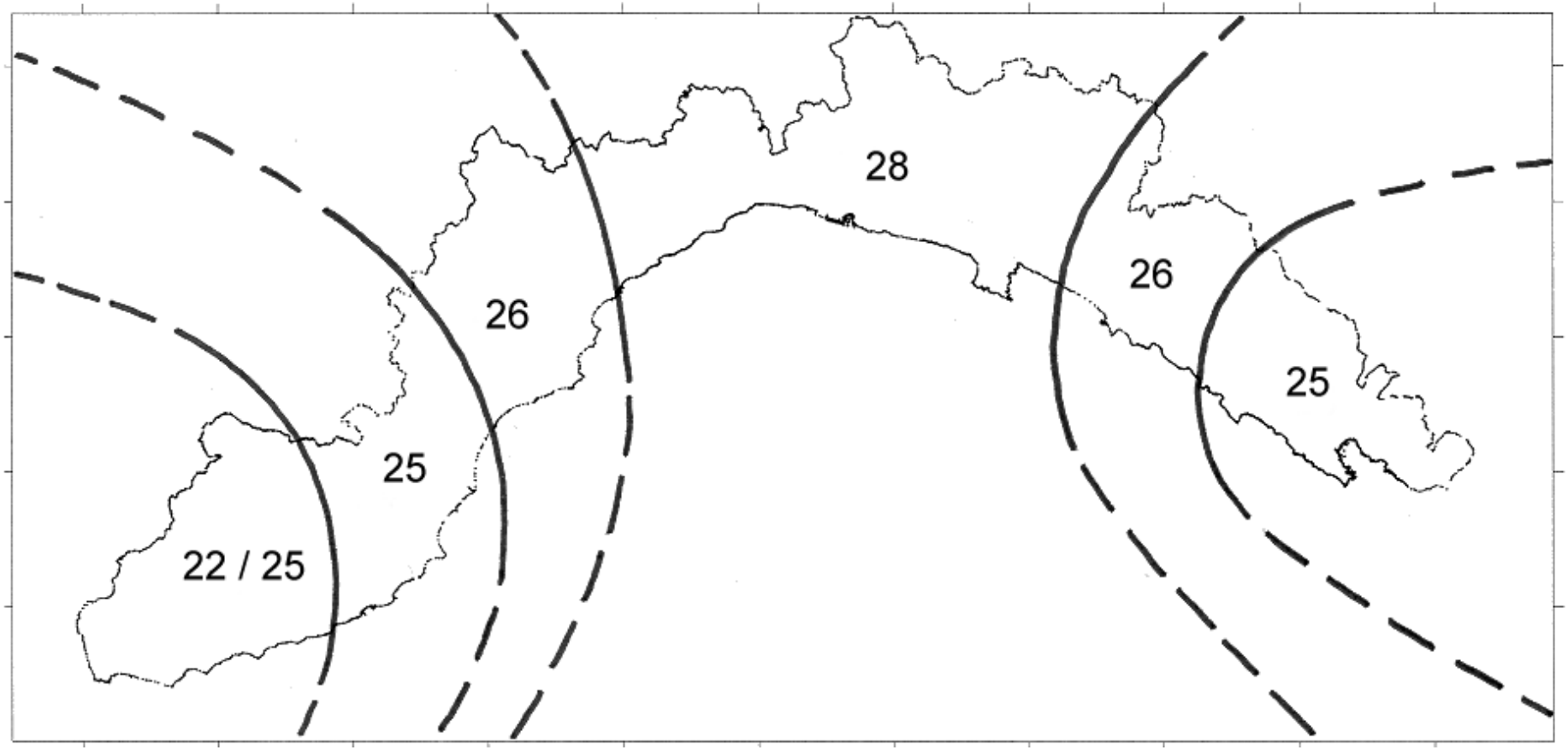


Distribution of the yearly maximum

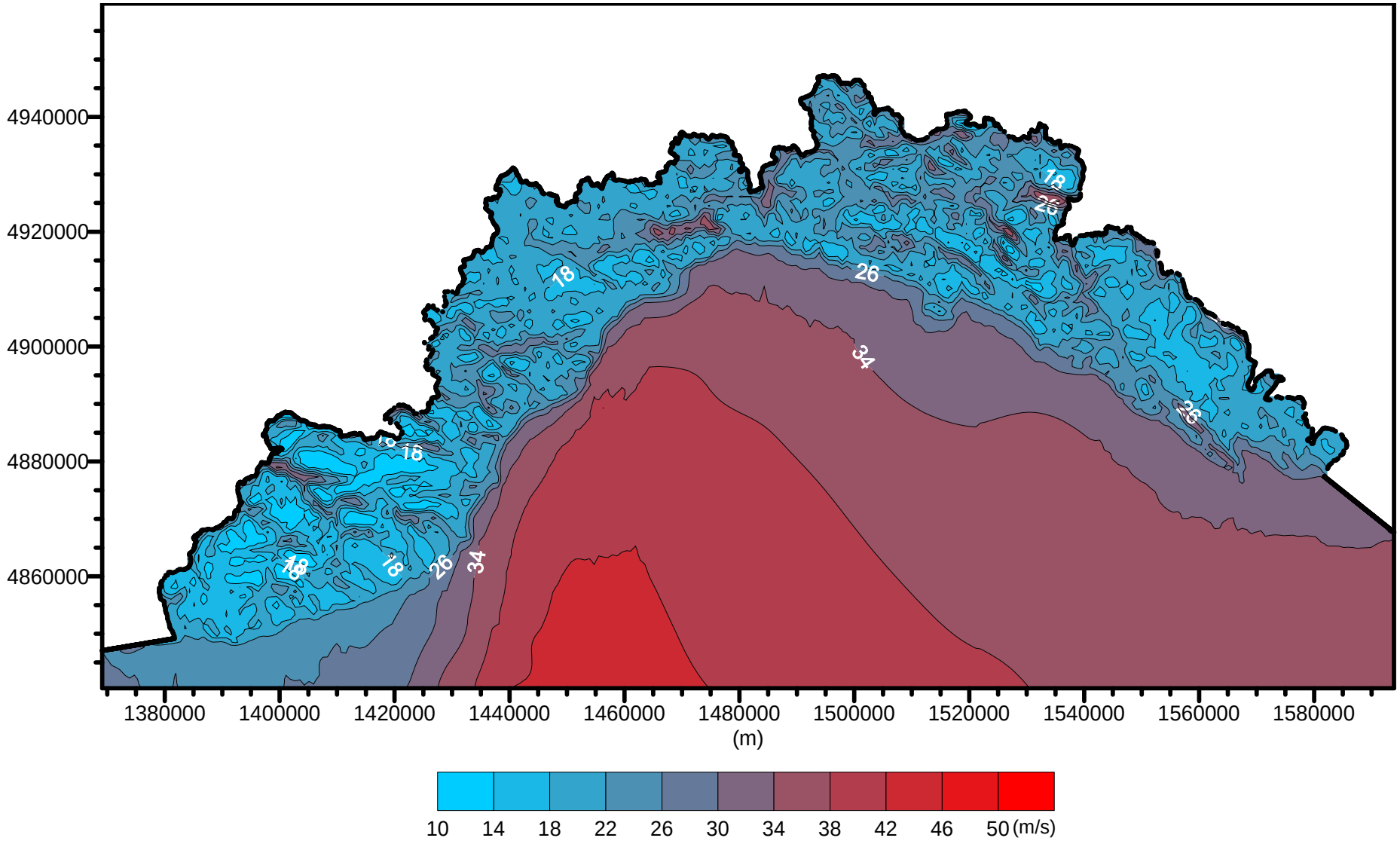


Zona	$v_{b,0}$ (m/s)
1	25
2	25
3	27
4	28
5	28
6	28
7	28
8	30
9	31

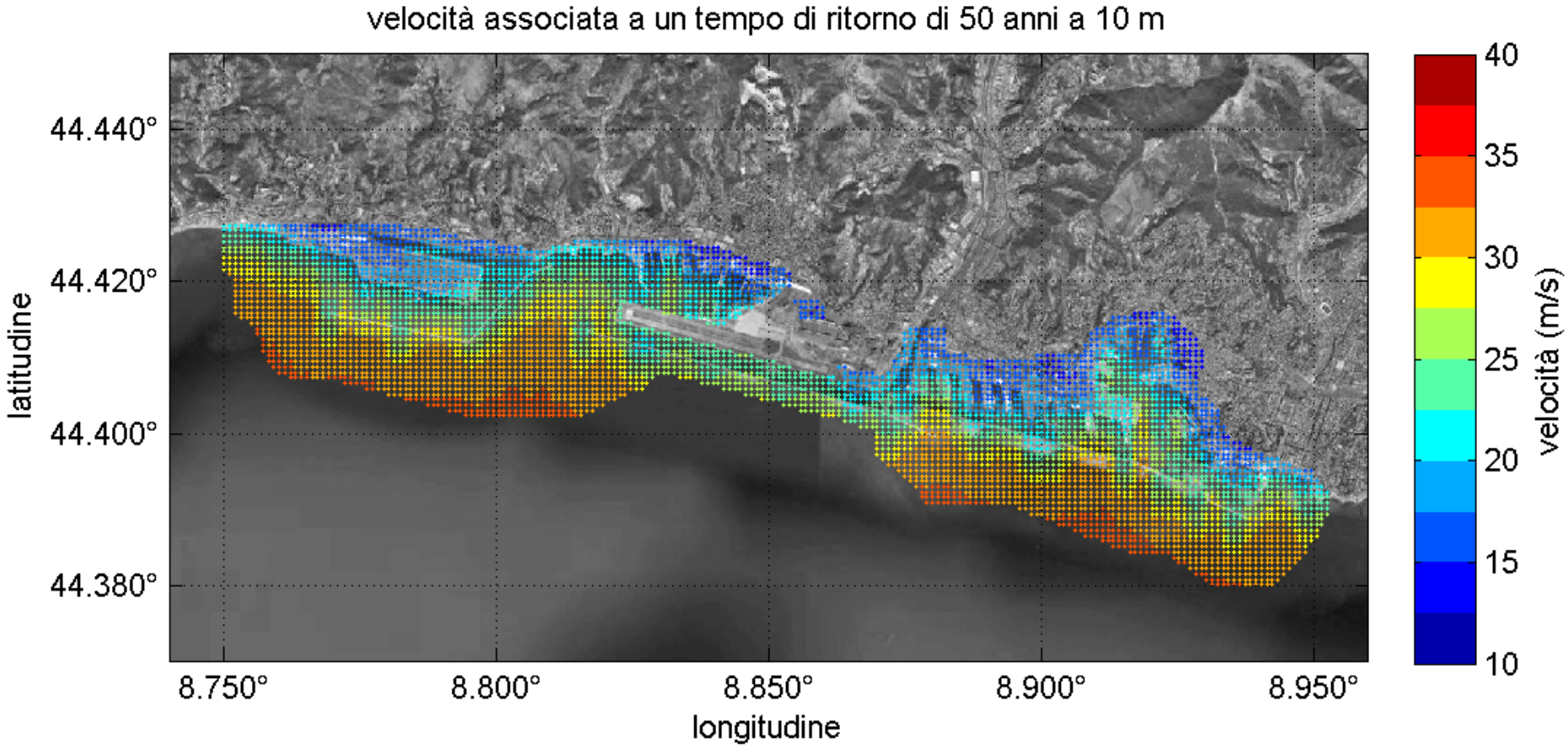
Italian map of the refence wind velocity with 50 years return period



Ligurian map of the refence wind velocity with 50 years return period

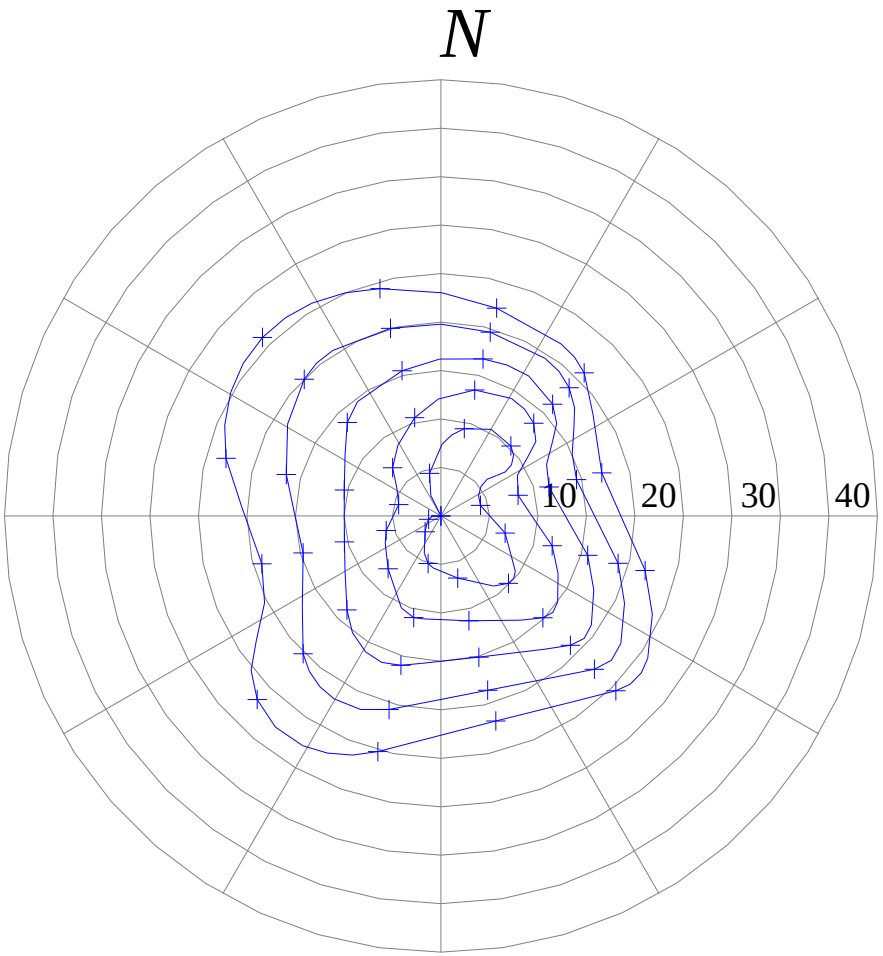


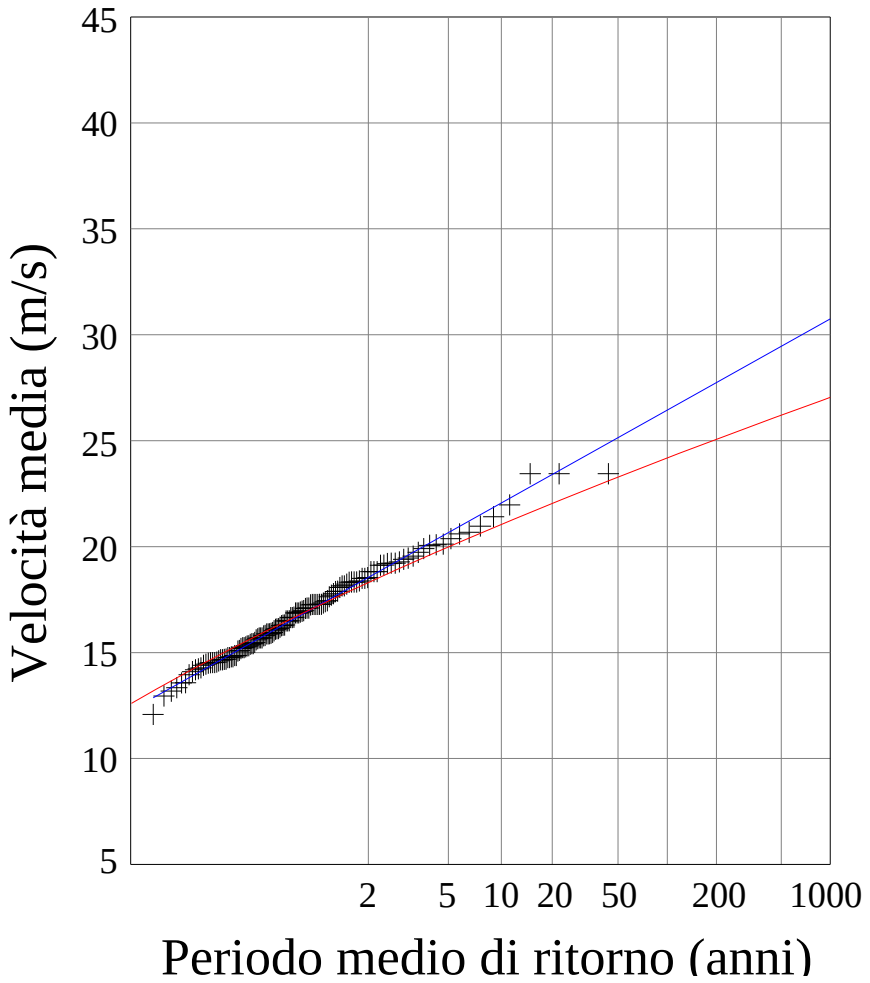
Ligurian map of the mean wind velocity at 10 m height with 50 years return period



Map of the mean wind velocity at 10 m height
with 50 years return period in the Port of Genova

Pavillon B of the Fair of Genova





Velocity distribution at the Pavillon B of the Fair of Genova