

Iceland Agricultural University, Hvanneyri

Landscape and Shelterwood Course (2004)

Lecturer: Dr. Alexander Robertson

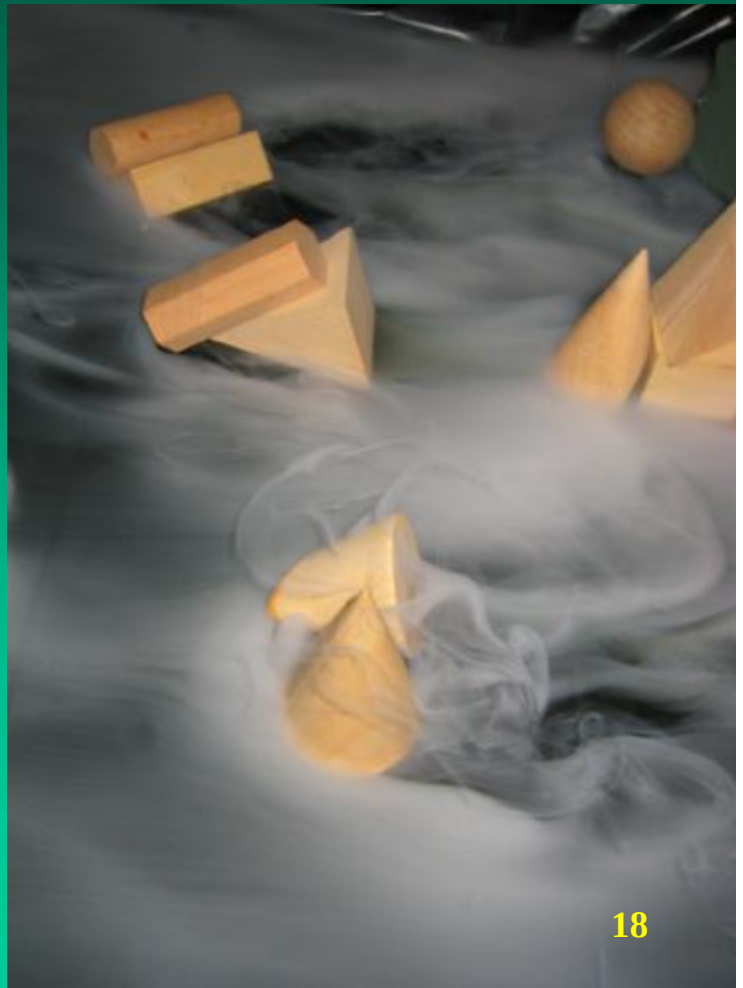
A selection of images from the student's exercises on modeling patterns of snow drifting and wind flow in landscapes and Dr. Robertson's study of storm winds at Stóra Sandfell.





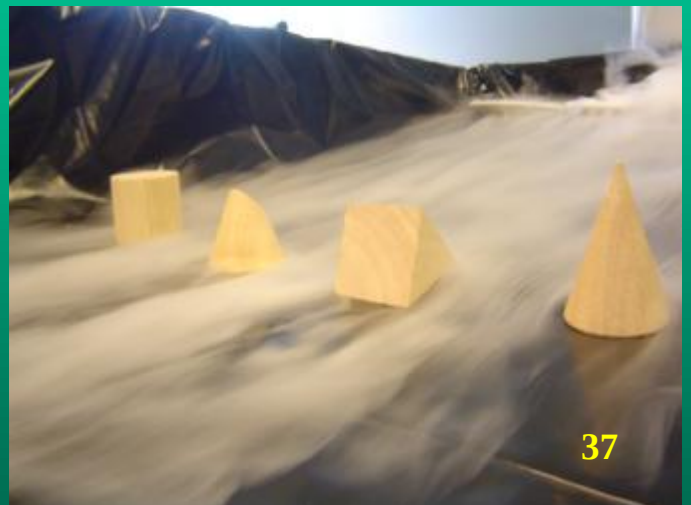
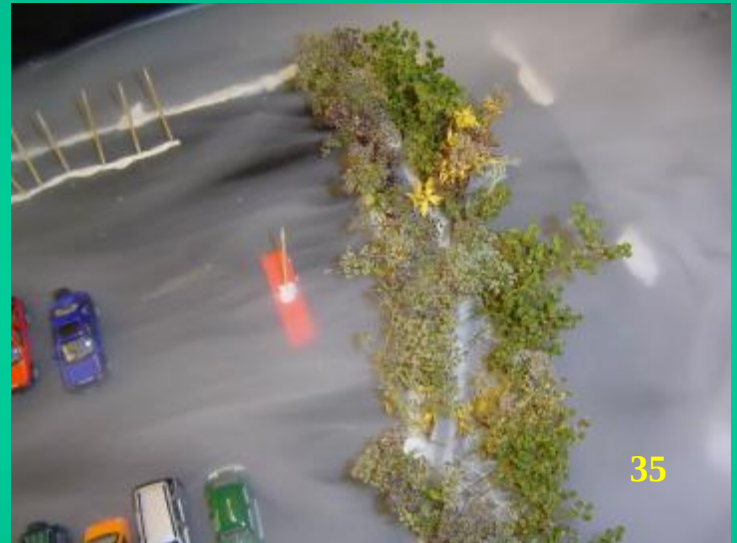


















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Storm Winds

AT

Stóra Sandfell





Photo: Jón Loftsson – owner of Stóra Sandfell

The ominous storm clouds above Stóra Sandfell is about to displace the valley fog in this beautiful inversion



The western side of Sandfell with the vegetable plot (foreground), meadows used for horse grazing is partially planted with black poplar adjacent to the naturally regenerating birch woodlands. The soil erosion on the slope has been essentially stopped because it is no longer used for sheep pasture.



View of Sandfell across the rich farmland the foreground of which is organically enriched with Alaska lupin

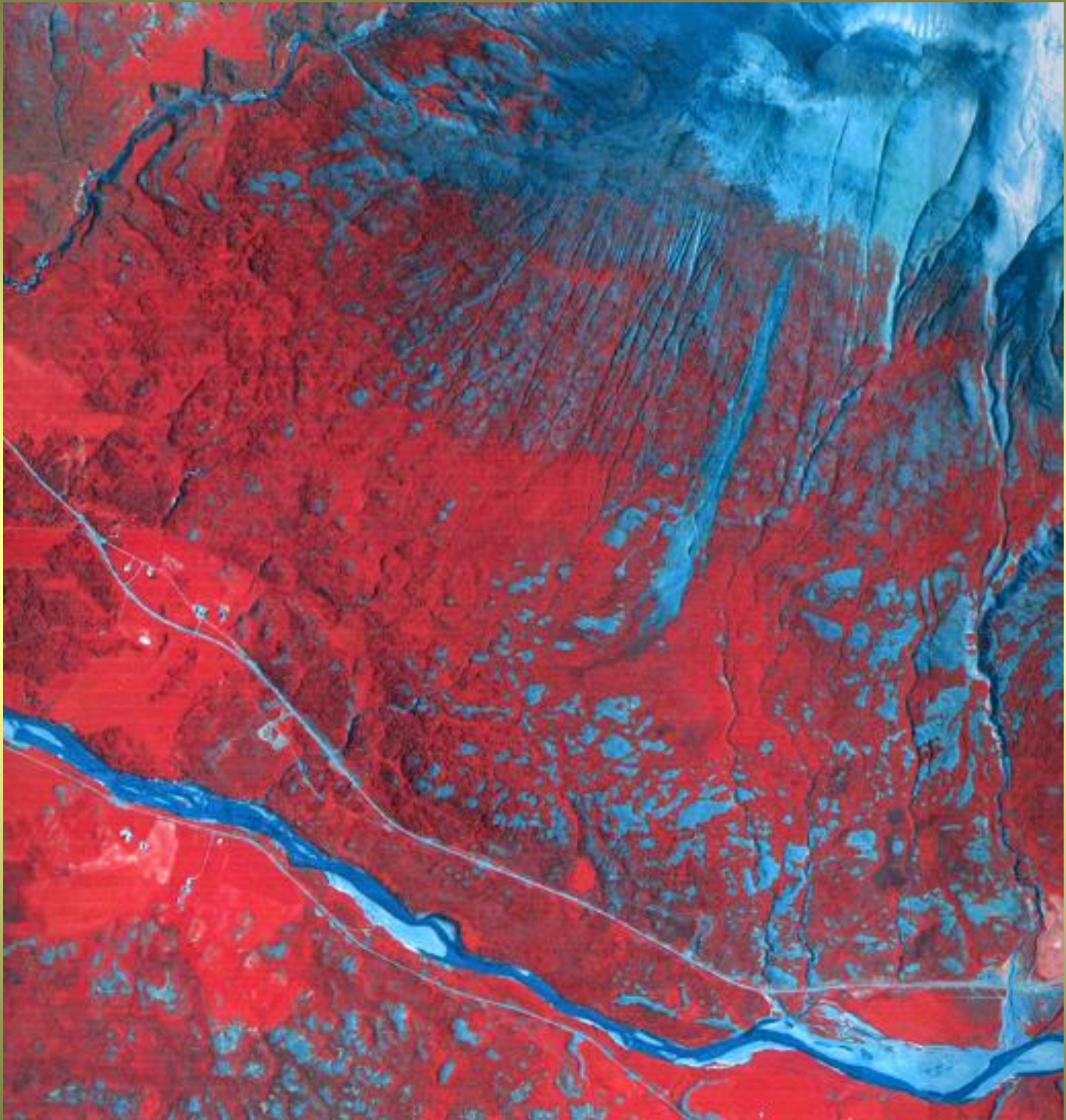


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● Stóra Sandfell







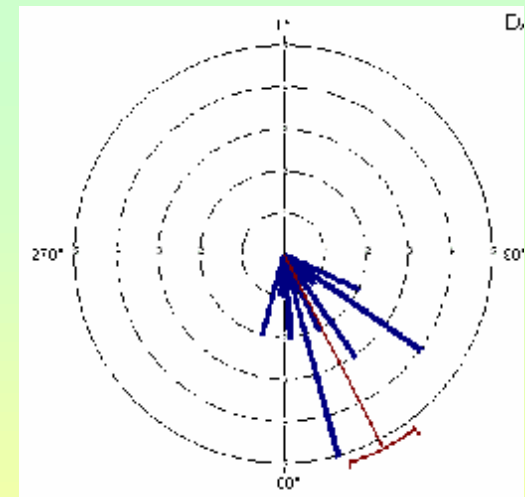


Wind and Temperature data and curcular statistics of wind direction at on the 16th September 2004 at Dalatangi weather station

Dalatangi,

	Date	time	V dir	V ave	V max ave	V max gust	Temp
4193	16/09/2004	1:00:00	167	11.9	12.4	15.5	8.1
4193	16/09/2004	2:00:00	171	12.9	13.5	16	7.9
4193	16/09/2004	3:00:00	152	10.3	12.8	15.1	7.9
4193	16/09/2004	4:00:00	161	10.3	11.1	13.4	8
4193	16/09/2004	5:00:00	145	10.8	10.8	13.5	8.1
4193	16/09/2004	6:00:00	150	9.6	10.9	14.5	7.5
4193	16/09/2004	7:00:00	151	9.5	11.9	15.5	6.9
4193	16/09/2004	8:00:00	147	9.8	10.4	14.5	7
4193	16/09/2004	9:00:00	121	7.8	11	14.9	7.5
4193	16/09/2004	10:00:00	125	6.2	9.2	14.5	7.8
4193	16/09/2004	11:00:00	139	5.2	7	11	8.2
4193	16/09/2004	12:00:00	128	8.6	8.6	13.9	8.7
4193	16/09/2004	13:00:00	119	8.8	9.5	15.8	8.9
4193	16/09/2004	14:00:00	113	7.9	8.1	14.1	9.2
4193	16/09/2004	15:00:00	130	6.2	7.4	12.2	9.4
4193	16/09/2004	16:00:00	170	3.7	7.5	9.8	9.2
4193	16/09/2004	17:00:00	182	1.6	1.8	3.7	9.1
4193	16/09/2004	18:00:00	192	4.3	5.1	7.3	9.3
4193	16/09/2004	19:00:00	178	9.4	10.1	13.4	11
4193	16/09/2004	20:00:00	193	14.4	14.4	18.5	12
4193	16/09/2004	22:00:00	164	11.7	13.1	15.8	9.9
4193	16/09/2004	23:00:00	162	11.2	12.3	15.1	9.5

Observations	22
Mean vector (μ)	152.73°
Length of mean vector (r)	0.92
Concentration	6.63
Circular variance	0.08
Circular standard deviation	23.21°
Standard error of mean	4.94°
95% confidence interval (-/+) for μ	143.04° 162.42°
99% confidence interval (-/+) for μ	140.00° 165.46°
Rayleigh test of uniformity (p)	0.00



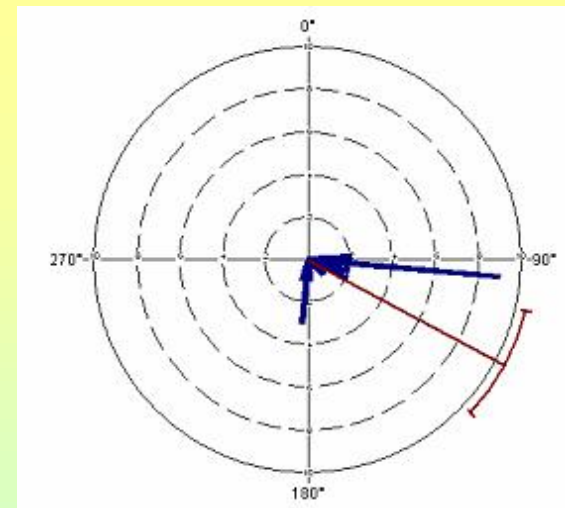
*Source of Data: Dr. Haraldur Ólafson, Professor in atmospheric sciences, Dept. of Physics, University of Iceland, Icelandic Meteorological Office, Bustadavegi 9, IS-150 Reykjavik Iceland

Wind and Temperature data* and circular statistics of wind direction at on the 16th September 2004 at Gagnheidi weather station

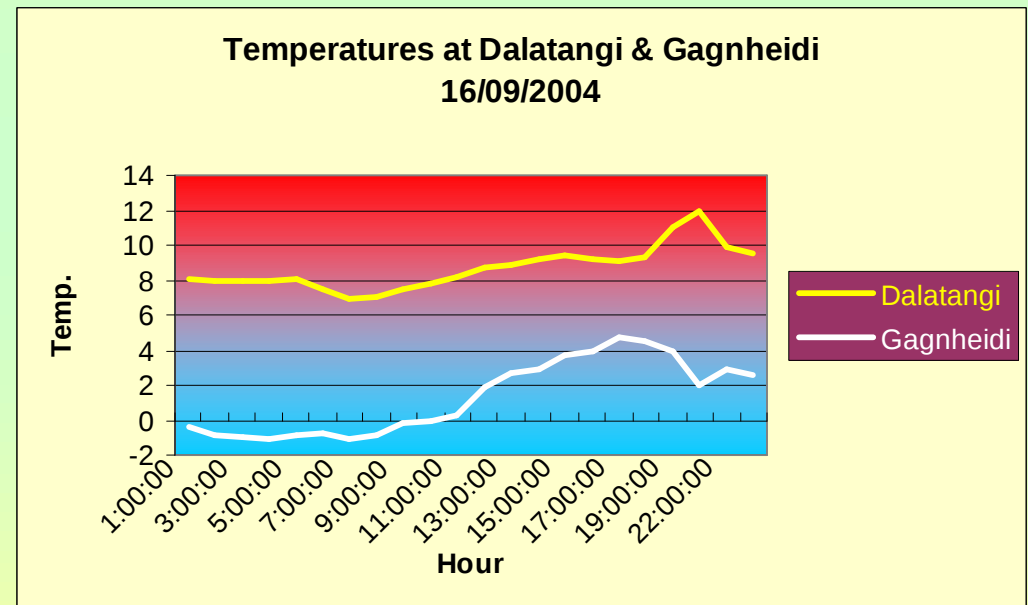
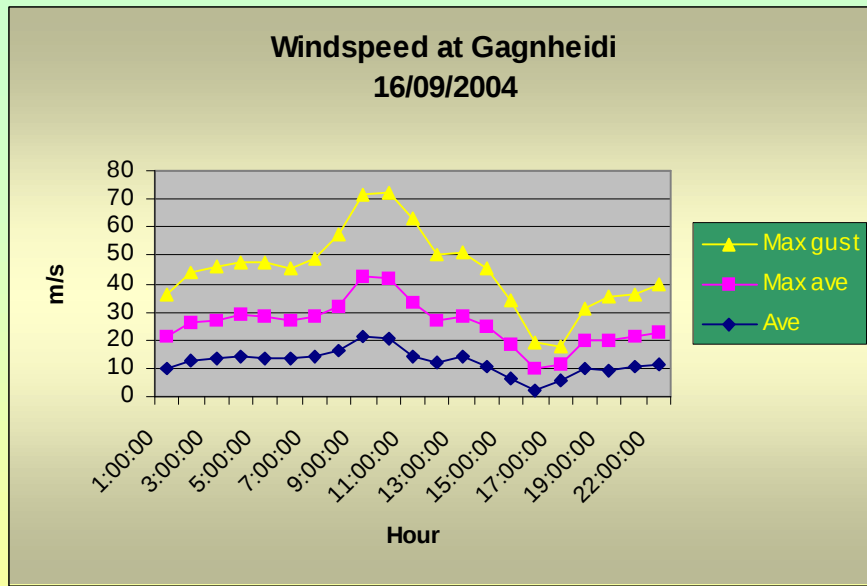
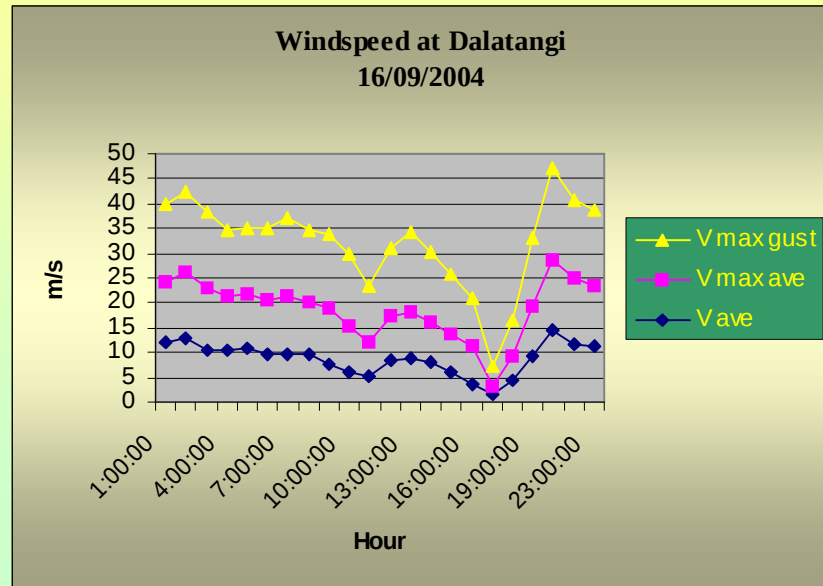
Gagnheidi

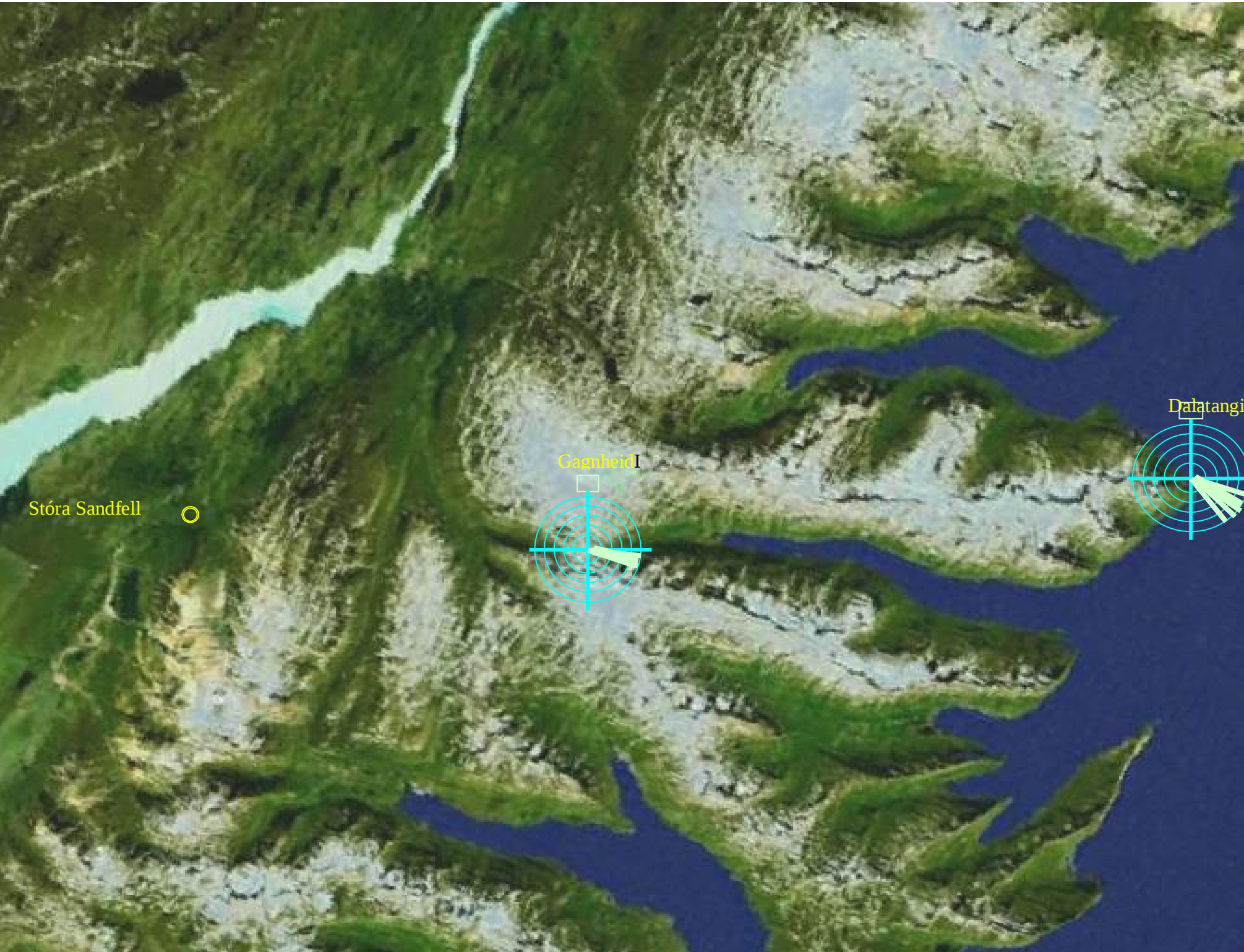
	Date	Time	V dir	Ave m/s	Max ave	Max gust	Temp
4275	16/06/2004	1:00:00	126	9.7	11.6	14.9	-0.4
4275	16/09/2004	2:00:00	111	13	13	17.6	-0.8
4275	16/09/2004	3:00:00	112	13.4	13.4	18.9	-1
4275	16/09/2004	4:00:00	110	14.4	14.4	18.5	-1.1
4275	16/09/2004	5:00:00	99	13.3	14.7	19.4	-0.9
4275	16/09/2004	6:00:00	96	13.3	13.3	18.6	-0.7
4275	16/09/2004	7:00:00	94	14.1	14.1	21	-1.1
4275	16/09/2004	8:00:00	97	16.1	16.1	25	-0.9
4275	16/09/2004	9:00:00	98	21.1	21.1	29	-0.2
4275	16/09/2004	10:00:00	97	20.7	20.8	30.6	0
4275	16/09/2004	11:00:00	93	14.5	18.6	30	0.3
4275	16/09/2004	12:00:00	90	12.3	14.4	23.5	1.9
4275	16/09/2004	13:00:00	95	14.2	14.2	22.3	2.7
4275	16/09/2004	14:00:00	89	10.8	13.9	20.8	2.9
4275	16/09/2004	15:00:00	91	6.7	11.8	15.8	3.7
4275	16/09/2004	16:00:00	107	2.3	7.6	9.1	4
4275	16/09/2004	17:00:00	185	5.5	5.5	6.5	4.8
4275	16/09/2004	18:00:00	181	9.8	9.8	11.8	4.5
4275	16/09/2004	19:00:00	190	9.4	10.2	15.7	4
4275	16/09/2004	20:00:00	193	10.6	10.6	14.6	2
4275	16/09/2004	22:00:00	172	11.3	11.5	16.5	2.9
4275	16/09/2004	23:00:00	137	12.9	12.9	15.6	2.6

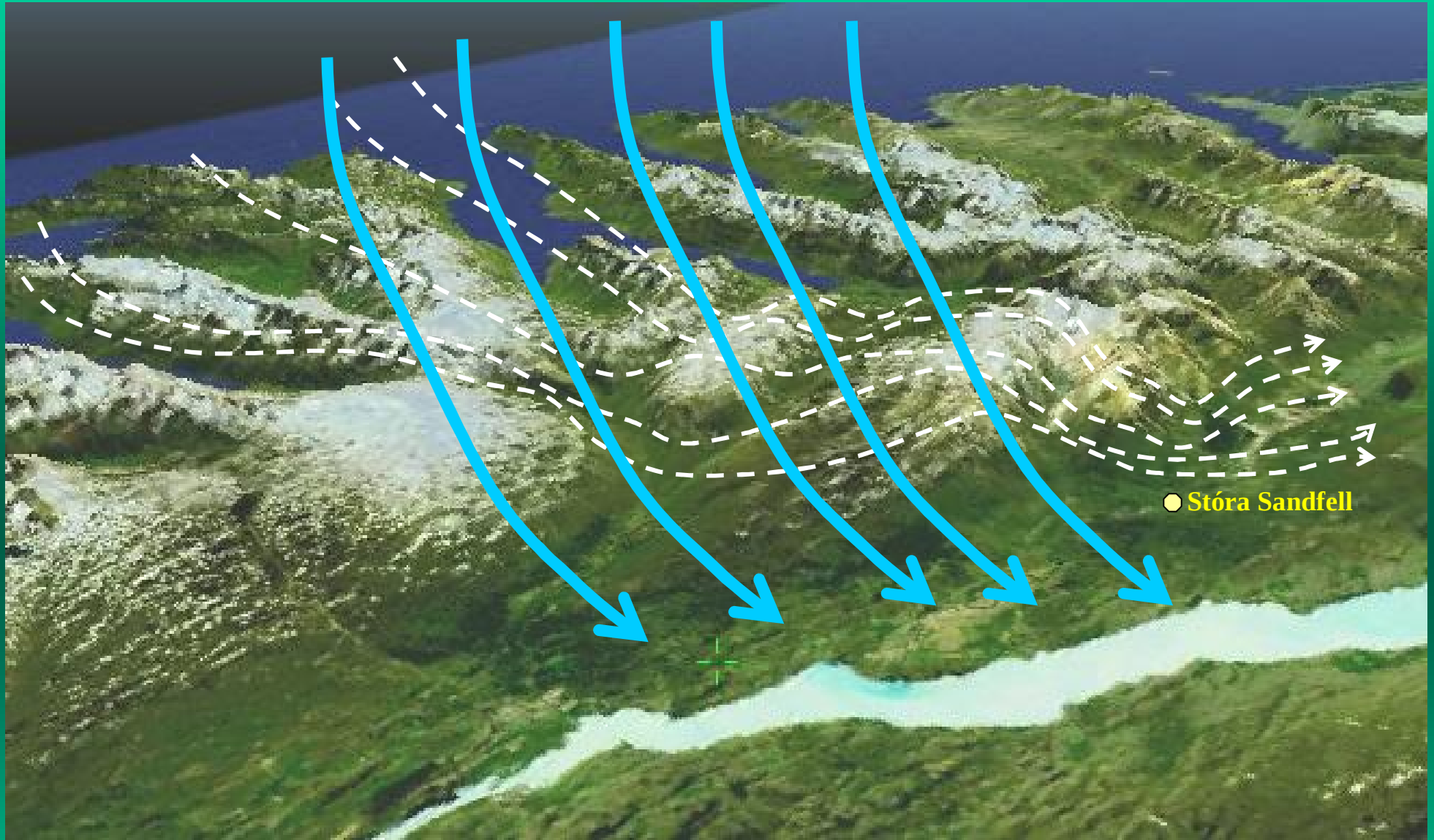
Observations	22
Mean vector (μ)	118.19°
Length of mean vector (r)	0.82
Concentration	3.08
Circular variance	0.18
Circular standard deviation	36.48°
Standard error of mean	7.70°
95% confidence interval (-/+) for μ	103.08° 133.29°
99% confidence interval (-/+) for μ	98.34° 138.04°



*Source of Data: Dr. Haraldur Ólafson, Professor in atmospheric sciences, Dept. of Physics, University of Iceland, Icelandic Meteorological Office, Bustadavegi 9, IS-150 Reykjavik Iceland

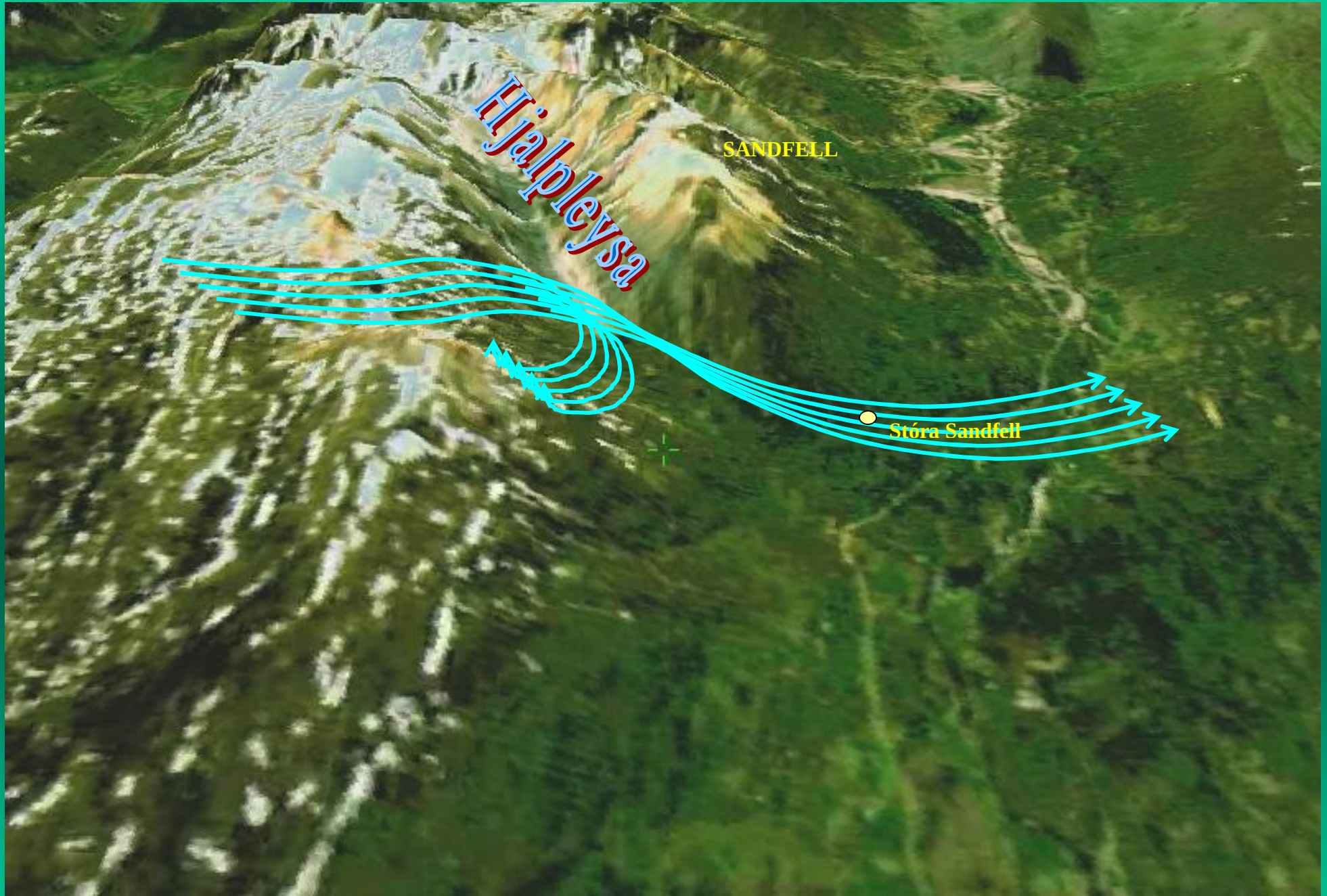






Solid Arrows - direction of stable gravity waves at a height of roughly 1500-2000 m

Dashed Arrows – redirection and perturbation of gravity waves by fiords and mountains in crosswinds resulting in strong down-slope winds with violent gusts in the lee of the mountains





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