

Explanations to the historical auroral photographs from the Sodankylä Geophysical Observatory 1927–1929 (Auroras_SGO)

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The metadata shown in the columns below belong to the collection of auroral photographs taken at the Sodankylä Geophysical Observatory by Dr Eyvind Sucksdorff during 1927–1929

The number of auroral pictures taken was 593. About 100 photographs were taken simultaneously from the observatory and at an auxiliary station

The geographical coordinates of the Sodankylä Geophysical Observatory are 67° 22' N; 26° 38'E about 120 kilometers north of the Polar Circle

The camera was from the Auroral laboratory of the University of Oslo headed by Prof. Carl Störmer. One picture covers about 25° x 25° degrees from the sky.

The film was made from glass with dimensions 9 x 13 cm. Each plate consists of six separate pictures

The camera was designed by Ole Krogness in Oslo. Similar cameras were used in the measurement of auroral forms in Norway from two distant places simultaneously

More information (in Finnish): Nevanlinna, H., 2023. "Revontulihavainnot Sodankylässä 1882–1944".

Sodankylä Geophysical Observatory Publications, No. 116, 52 p

Nevanlinna, H. and Tanskanen, I., 2024: Early auroral photography and observations at the Sodankylä Geophysical Observatory in Finland, 1927–1929. *Journal of Geophysical Research*, 129, e2023JA021456, doi:10.1029/2023JA021456. (submitted).

Explanations

Column A: Number of aurora pictures in the catalogue Auroras_SGO

Column B: Year and date (dd.mm) of the photograph

Column C: Time in UT (hour minute)

Column D: The constellation or a bright star towards which the camera was directed

Column E: Compass direction of the camera taken from a star atlas.

Column F: Exposure time in seconds

Column G: Daily local geomagnetic 3-hour activity number K starting at 0 h UT

Column H: Comments

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	1927						
1	18.11	21 02	Cassiopeia	SW	15		Pictures 1 to 6 are part of a bright and rapidly changing auroral arc from W - Zenith - E
2		21 03	Gemini	E	5		
3		21 03	Cassiopeia	SW	3		
4		21 04	Capella	SE	7	α Auriga = Capella	
5		21 05	Gemini	E	5		
6		21 06	Capella	SE	4	11125557 α Auriga = Capella. End of the cassette	
7	18.11	21 08	Hercules	NW	4		Pictures 7 to 9 are rest of the disappearing arc as above
8		21 08	Aquila	W	6		
9		21 10	Gemini	E	12		Camera moved during the photo shot
10		21 23	Cygnus	NNW	20		
11		21 24	Ursa Major	N	16		Disappearing auroral arc, bright pathces
12		21 25	Cassiopeia	NE	15		End of the cassette
13	18.11	21 27	Perseus	SE	9		Auroral veils close to the constellation Ursa Major
14		21 27	Capella	E	14		α Auriga = Capella
15		21 28	Cassiopeia	ENE	15		Cloudy patches with bright stripes
16		21 30	Ursa Major	N	17		
17		21 30	Ursa Major	N	12		
18		21 31	Ursa Major	N	5		End of the cassette
19	18.11	21 32	Gemini	E	18		

20		21 34	Cassiopeia	ENE	16	
21		21 35	Gemini	E	23	
22		21 36	Cygnus	W	19	
23		21 37	Auriga	E	23	
24		21 39	Capella	E	18	α Auriga = Capella. End of the cassette
25	18.11	22 26		E	20	Bright auroral arc WNW - E , western edge towards N.
26		22 29		E	30	Arc disappeared soon
27		22 30		E	3	
28		22 30		E	2	
29		22 31		E	3	Leakage in the cassette
30		22 31		E	3	
31	13.12	20 17	Cygnus	NNW	7	11116677
32		20 18	Cygnus	NNW	4	
33		20 20	Cygnus	NNW	8	Auroras disappeared totally 20 25
34		20 21	Vega	NW	8	α Lyrae = Vega
35		20 24	α Cygni	NNW	10	α Cygni = Deneb
36		21 02	Ursa Major	ENE	1	End of the cassette
37	13.12	21 03	Ursa Major	ENE	1	Very violent and flaming auroral display, reddish and greenish
38		21 04	Ursa Major	ENE	4	
39		21 04	Ursa Major	ENE	3	
40		21 05	Ursa Major	ENE	1	
41		21 05	Ursa Major	ENE	1	
42		21 05	Ursa Major	ENE	1	
43	13.12	21 07	α Cygni	N	3	α Cygni = Deneb
44		21 08	Cygnus	N	3	

45		21 09	Cor Caroli	NE	1		α Canes Venatici = Cor Caroli
46		21 09	Ursa Major	SE	1		
47		21 10	Ursa Major	SE	1		
48		21 10	Pegasus	W	2		End of the cassette
49	13.12	21 15	Canes Venatici	NE	10		
50		21 16	Canes Venatici	NE	10		
51		21 21	Canes Venatici	NE	10		Auroral displays disappear
52		21 21	Pegasus	SW	7		New auroral arc, bright, red and green
53		21 22	Pegasus	SW	4		
54		21 22	Ursa Major	NE	1		End of the cassette
55	13.12	21 24	Ursa Major	NE	3		Auroral arc between the constellations Ursa Major & Minor
56		21 25	Ursa Major	NE	3		vanished rapidly
57		21 26	Vega	NNW	3		α Lyrae = Vega. Leakage in the cassette
58		21 26	Pegasus	W	2		
59		21 41	Pegasus	W	5		New auroral arc south of the Zenith
60		21 42	Pegasus	W	5		End of the cassette
61	13.12	21 44	Cassiopeia	W	2		
62		21 44	Cassiopeia	W	3		Leakage in the cassette
63		21 45	Ursa Major	SE	5		
64		22 03	Perseus	S	6		Several arcs. Sky became cloudy
65		22 05	Ursa Major	SE	5		Leakage in the cassette
66		22 06	Perseus	S	4		End of the cassette
67	18.12	20 06	α Cygni	NW	20	11125557	α Cygni = Deneb. Bright auroral arcs
68		20 06	Cygnus	NW	13		
69		22 07	W		20		

70		20 09	W		10	
71		20 11	Cassiopeia	SSW	32	
72		20 13	Auriga	SSE	20	Cirrus aurora. Later sky covered by clouds. End of the cassette
73	28.12.	19 33	Pegasus	W	28	10002385
74		19 34	Pegasus	W	17	Bright auroral arc W-Zenith-E
75						Photo failure
76		19 36	Pegasus	W	7	
77		19 37	Pegasus	W	13	End of the cassette
78		19 38	Capella	NE	8	α Auriga = Capella. End of the cassette
79	28.12	19 42	Leo	NE	14	
80		19 43	Capella	SE	18	α Auriga = Capella
81		19 43	Pegasus	SW	30	
82		19 45	Orion	SE	61	
83		19 47	Leo	NE	61	
84		19 48	Capella	SE	4	α Auriga = Capella. End of the cassette
85	28.12	19 48	Orion	SE	5	Auroral corona covered the whole sky, many colors.
86		19 49	Capella	S	6	α Auriga = Capella
87		19 50	Capella	S	8	
88		19 50	Orion	SE	8	
89		19 51	Pegasus	W	8	
90		19 51	Capella	S	8	α Auriga = Capella. End of the cassette
91	28.12	19 54	Capella	SE	9	
92		19 55	Gemini	ESE	12	Red auroral veils, rapid movements
93		19 55	Capella	SE	14	
94		19 56	Capella	SE	25	

95		19 57	Capella	SE	16	
96		19 57	Taurus	S	27	The constellation Pleiades in the middle of the photo
97	28.12	20 41	Capella	W	32	End of the cassette
98		20 42	Ursa Major	E	12	α Auriga = Capella
99		20 43	Vega	NNE	60	α Lyrae = Vega. Auroral arc in N
100		20 45	Pegasus	NNW	40	
101		20 46	α Cygni	NW	21	α Cygni = Deneb
102		20 47	Perseus	S	33	End of the cassette
103	28.12	21 44	Cygnus	WNW	60	
104		21 46	Cygnus	WNW	10	
105		21 47	Pegasus	WNW	10	
106		21 49	Pegasus	WNW	10	Aural arc from North to Zenith. Its western edge is bended
107		21 50	Pegasus	WNW	15	
108		21 51	Pegasus	WNW	4	End of the cassette
109	28.12	21 52	Pegasus	WNW	5	
110		21 53	Pegasus	WNW	15	
111		21 55	Otava	NE	17	Otava = Big Dipper in the constellation Ursa Major
112		21 56	Andromeda	W	20	
113		21 57	Cassiopeia	NW	14	
114		21 58	Leo	E	10	End of the cassette
	1928					
115T	27.1	18 43 32	Vega	NNW	22	45235443 α Lyrae = Vega. Photo taken at Sodankylä-Tähtelä (T)
115K						Photo taken simultaneously at the auxiliary station Kelujärvi (K)
116T		18 46 30	vega	NNW	20	
116K						

117T	18 48	Vega	NNW	23	
117K					
118T	18 49	α Cygni	NW	41	
118K					α Cygni = Deneb
119T	18 55	Cygnus	NW	10	
119K					
120T	18 56	Cygnus	NW	24	
120K					End of the cassette
121T 27.1	19 10	Dragonis	N	23	
121K					
122T	19 11	Dragonis	N	33	
122K					
123T	19 13	Lyra	NNW	20	Auroral arc around the constellation Lyra and Cygnus
123K					
124T	19 14	Lyra	NNW	52	
124K					
125T	19 16	Lyra	NNW	22	
125K					
126T	19 17	Lyra	NNW	31	End of the cassette
126K					
127T 27.1	18 22	Cygnus	NW	26	
127K					
128T	21 23	Cygnus	NW	7	
128K					
129T	19 23	Cygnus	NW	8	
129K					
130T	19 24	Pegasus	W	9	

130K					
131T	19 25	Pegasus	W	25	
131K					
132T	19 26	Pegasus	W	28	End of the cassette
132K					
133T 27.1	19 28	Pegasus	W	31	
133K					
134T	19 29	α Cygni	NNW	3	α Cygni = Deneb
134K					
135T	19 31	Cygnus	NNW	32	
135K					
136T	19 32	Cygnus	NNW	33	
136K					
137T	19 34	Cygnus	NNW	46	
137K					
138T	19 35	Cygnus	NNW	62	End of the cassette
138K					
	11.3				20236666
139	19 21	Otava	E	8	Otava = Big Dipper in the constellation Ursa Major
140	19 21		Zenith	8	
141	21 22	Otava	E	7	Auroral veils with many pulsating colors on southern sky
142	19 22	Otava	E	2	
143	19 23	Otava	E	5	
144	19 24	Zenith		2	
145 11.3	19 28		Zenith	5	
146	19 28		Zenith	6	
147	19 33			7	

148		19 35	Cassiopeia	NW	5	
149		19 38			11	
150						End of the cassette
151		19 41		Zenith	23	
152		19 41		Zenith	9	
153		19 42		Zenith	7	
154		19 42			11	
155			Leo	SE		
156		20 22			26	End of the cassette
157	13.3	19 55	Taurus	W	22	12123666
158		19 57	Cygnus	N	32	
159		19 58	Andromeda	NW	32	
160		20 00	Cygnus	N	24	
161		20 02	Capella	W	13	α Auriga = Capella
162		20 02	Andromeda	NW	21	End of the cassette
163	13.3	20 03	Taurus	W	15	
164		20 04	Auriga	W	29	
165		20 05	Taurus	W	21	
166		20 06	Taurus	W	23	
167		20 07	Cygnus	N	16	
168		20 07	Taurus	W	22	End of the cassette
169	13.3	20 08	Taurus	W	35	
170		20 10	Vega	NE	20	α Lyra = Vega
171		20 11	Arcturus	E	10	α Bootes = Arcturus
172		20 12		Zenith	3	

173		20 12		Zenith	5	
174		20 13	Arcturus			α Bootes = Arcturus. End of the cassette
175	13.3	20 14	Andromeda	NW	3	
176		20 14	Otava	SE	13	Otava = Big Dipper in the constellation Ursa Major
177		20 15	Otava	SE	18	
178		20 16	Otava	SE	21	
179		20 17	Otava	SE	23	
180		20 18	Pleiades	W	9	Pleiades is located in the constellation Taurus. End of the cassette
181						
182	13.3	20 31	Taurus	W	39	
183		20 33	Taurus	W	31	
184		20 37	Cygnus	N	21	
185		20 38	Taurus	W	25	
186		20 40	Taurus	W	12	

Pictures 187–251 are missing

1929

252	27.2	18 23	Pegasus	WNW	12	
253		18 24	Pegasus	WNW	7	Venus is on the left
254		18 24	Pegasus	WNW	14	
255		18 25	Pegasus	WNW	19	
255		18 25	Taurus	SW	19	
256		18 26	Venus	W	10	End of the cassette
258	27.2.	18 28	Venus	W	16	Pictures 258-263 Jupiter (upper) close to Venus (lower)

259		18 29	Venus	W	8	
260		18 29	Venus	W	11	
261		18:30	Venus	W	11	
262		18 31	Venus	W	9	
263		18 32	Venus	W	12	End of cassette
276	27.2	19 19	Pegasus	NNE	8	
277		19 20	Cygnus	NW	8	
278		19 20	Cygnus	NNE	20	
279		19 21	Pegasus	NNE	24	
280		19 26	Sirius	S	55	
281		19 28	Cygnus		35	Bright star on the right is Sirius. End of the cassette

Pictures 257, 264-275 and 282–312 are missing

313	27.2	20 23	Zenith		2	The southern sky is covered by bright auroral flames. Corona
314		20 23	Zenith		2	The photograph is too dark
315		20 23	Zenith		1	
316		20 23	Zenith		2	
317		20 24	Zenith		2	
318		20 31	Zenith		1	Auroras are moving to the west. End of cassette

Constellations

Tähtikuviot

Revontuliluettelossa esiintyvät tähtikuviot

Andromeda

Andromeda

Aquila	Kotka	
Auriga	Ajomies	
Big Dipper	Otava	An asterism in the constellation Ursa Major
Bootes	Karhunvartija	
Canes Venatici	Ajokoirat	
Canis Major	Iso koira	
Cassiopeia	Kassiopeia	
Cygnus	Joutsen	
Draco	Lohikäärme	
Gemini	Kaksoset	
Hercules	Hercules	
Leo	Leijona	
Lyra	Lyyra	
Orion	Orion	
Pegasus	Pegasus	
Perseus	Perseus	
Pleiades	Seulaset	
Taurus	Härkä	
Ursa Major	Iso karhu	

ation.

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