

Formation, distribution and ablation contribution of subglacial cavity collapses on Swiss glaciers

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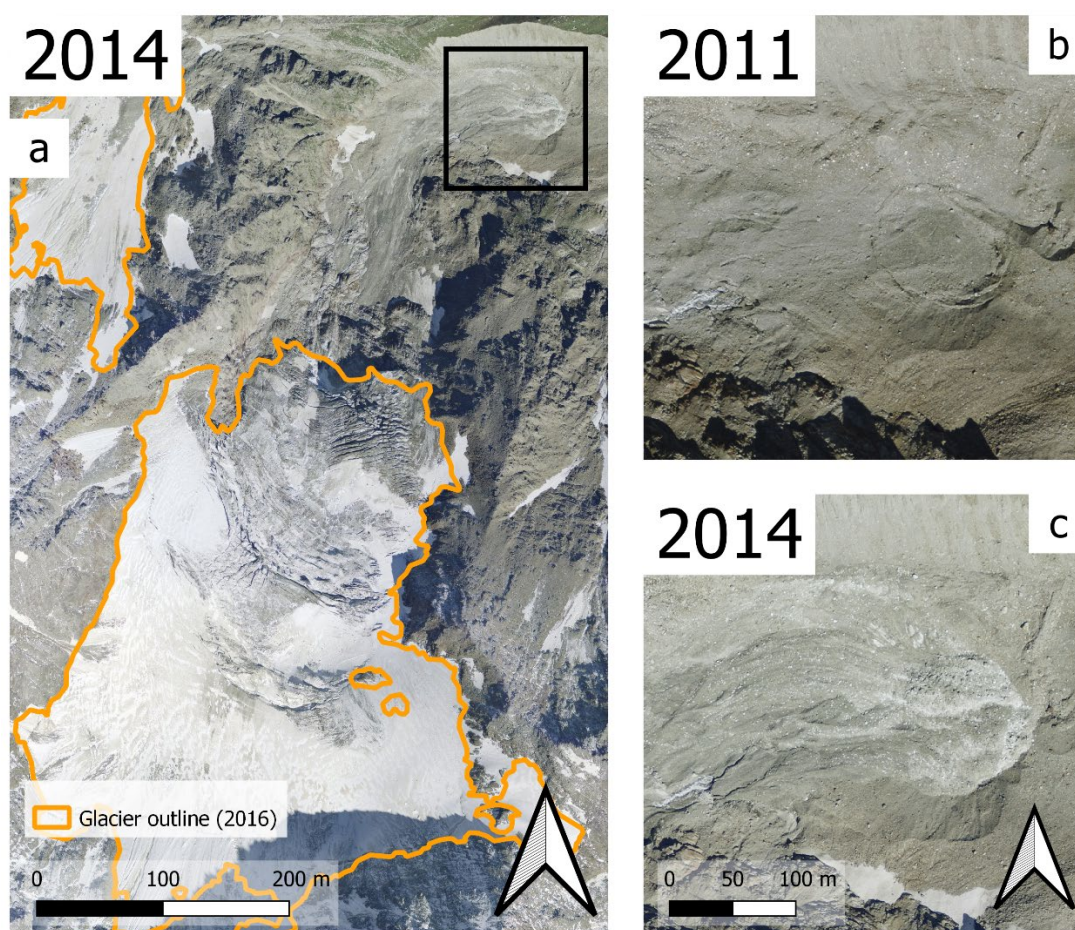


Figure S1: Circular glacier collapse feature at Rossbodegletscher, Switzerland. This is the longest-lived collapse feature in our inventory (28 years lifespan, compared to median lifespan of 4 years). Its longevity could be connected to frequent avalanching. (a): Aerial image of the glacier in 2014, map inset for panels b and c outlined in black. Note that the glacier outline from 2016 no longer includes the lower glacier tongue, after being detached from the upper part of the glacier. (b): Collapse feature in 2011 on the debris-covered glacier tongue. The feature can be identified by the circular crevasses surrounding it. (c): Same map extent as in panel b. An ice avalanche, originating from the remaining glacier to the southwest, deposited ice and snow onto the collapse feature in 2014.

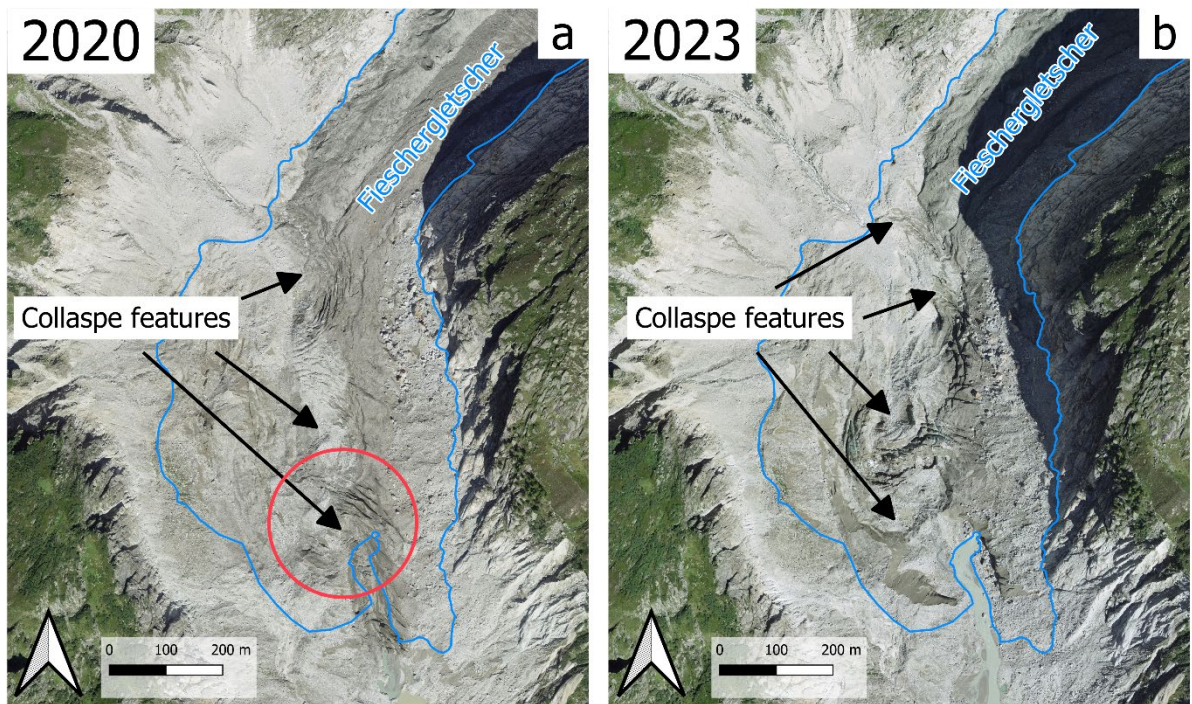


Figure 1: Glacier terminus of Fieschergletscher (Switzerland) in 2020 and 2023. The glacier extent of the year 2022 is shown (blue). The glacier terminus is covered with several collapse features, indicated by circular crevasses. (a): Aerial image of the glacier terminus in 2020. Collapse features are indicated by black arrows. The ice thickness of the southernmost feature (red circle) was found to be 128m at the time of its first appearance (2017). (b): Aerial image of the glacier terminus in 2023. The cavity roof of some features have collapsed, the glacier surface is characterized by many crevasses, ice cliffs and heterogeneous debris cover.

Table S1: Inventory of all detected glacier collapse features in the Swiss Alps. For further information on inventory attributes see main text.

SCF_ID	X	Y	yr0	yrfinal	previmage	nxtimage	rel_loc	IMS	MC	lake	diameter	area	IceThickness	SGI_ID	source
1	2645869	1139378	2022	2023	NaN	NaN	cen	0	1	0	NaN	4478.5	14.3	B36-26	Spezialbefliegung
2	2636400	1102375	2017	2022	NaN	NaN	cen	0	0	1	NaN	3964.0	19.4	B53-04	Spezialbefliegung
3	2630268	1095409	2015	2017	NaN	NaN	cen	0	1	0	NaN	1122.6	23.5	B56-03	Spezialbefliegung
4	2630441	1095377	2016	2019	NaN	NaN	cen	0	1	0	NaN	4907.0	44.1	B56-03	Spezialbefliegung
5	2630709	1095297	2016	2020	NaN	NaN	mar	1	0	0	NaN	5243.0	42.1	B56-03	Spezialbefliegung
6	2658703	1153862	2017	NaN	NaN	NaN	mar	1	0	0	NaN	9919.2	31.0	A54g-03	Spezialbefliegung
7	2659902	1154041	2015	NaN	NaN	NaN	cen	0	1	NaN	NaN	29699.3	80.6	A54g-03	Spezialbefliegung
8	2660194	1154143	2015	NaN	NaN	NaN	cen	0	1	NaN	NaN	16989.1	58.1	A54g-03	Spezialbefliegung
9	2672804	1159622	2022	2023	NaN	NaN	cen	0	1	1	NaN	5112.4	29.0	B43-03	Spezialbefliegung
10	2630932	1095287	2021	2023	NaN	NaN	mar	1	0	0	NaN	2384.7	4.5	B56-03	Spezialbefliegung
70	2570774	1087327	2010	NaN	2007	NaN	cen	1	NaN	NaN	167	27511.0	95.9	B85-07	SWISSIMAGE
71	2588472	1094976	2010	2010	2007	2013	cen	0	1	0	55	2537.0	NaN	B83-03	SWISSIMAGE
72	2598219	1094849	2010	2016	2007	2020	cen	0	0	0	46	3483.0	26.8	B74-08	SWISSIMAGE
73	2598439	1087288	2010	2010	2007	2013	cen	0	1	0	67	9240.0	NaN	B82-27	SWISSIMAGE
74	2600345	1090040	2010	2017	2007	2020	NaN	1	0	1	60	5874.0	NaN	B82-23	SWISSIMAGE
75	2600128	1089997	2010	2013	2007	2016	NaN	1	0	1	30	1069.0	NaN	B82-23	SWISSIMAGE
76	2604381	1093109	2010	2013	2007	2016	mar	0	1	0	NaN	4019.0	NaN	B73-14	SWISSIMAGE
77	2611449	1100121	2010	2010	2007	2013	cen	0	0	1	31	1038.0	NaN	B72-07	SWISSIMAGE
78	2609910	1098642	2010	2013	2007	2016	cen	0	1	0	77	7753.0	NaN	B72-11	SWISSIMAGE
79	2619242	1092274	2010	2013	2007	2016	cen	0	1	0	48	9090.0	NaN	B56-31	SWISSIMAGE
80	2620425	1090712	2010	2015	2007	2017	cen	0	NaN	0	74	8599.0	6.6	B56-31	SWISSIMAGE
81	2623550	1090376	2010	2012	2009	2015	cen	0	1	0	72	6521.0	NaN	B56-07	SWISSIMAGE
82	2623672	1091799	2010	2012	2009	2015	mar	0	0	0	NaN	8832.0	20.1	B56-07	SWISSIMAGE
83	2609976	1098440	2010	2016	2007	2017	cen	0	1	0	126	29531.0	55.1	B72-11	SWISSIMAGE
84	2610138	1098399	2010	2016	2007	2017	mar	1	0	0	NaN	9025.0	24.2	B72-11	SWISSIMAGE
85	2658587	1162082	2010	2010	2004	2013	cen	1	1	1	134	16758.0	NaN	A54i-05	SWISSIMAGE
86	2715200	1183110	2010	NaN	2003	NaN	mar	1	NaN	NaN	115	16343.0	54.1	A14m-09	SWISSIMAGE

87	2645627	1110888	2011	2020	2009	2023	mar	1	0	0	62	3664.0	11.8	C01-04	SWISSIMAGE
88	2624419	1142057	2011	2020	2008	2023	NaN	0	NaN	NaN	31	1125.0	22.9	B30-05	SWISSIMAGE
89	2620474	1097973	2012	2017	2010	2020	mar	1	0	1	NaN	16877.0	NaN	B57-14	SWISSIMAGE
90	2618174	1104280	2012	2013	2010	2016	mar	1	0	0	35	1263.0	NaN	B62-10	SWISSIMAGE
91	2620642	1110777	2013	2016	2011	2017	cen	0	0	0	44	2176.0	NaN	B60-09	SWISSIMAGE
92	2640318	1094810	2012	2017	2009	2020	NaN	0	0	1	NaN	2033.0	18.9	B52-22	SWISSIMAGE
93	2636433	1102580	2012	2012	2009	2015	cen	0	1	1	37	1856.0	NaN	B53-04	SWISSIMAGE
94	2659858	1151856	2012	NaN	2009	NaN	cen	1	1	NaN	120	30527.0	61.7	B41-07	SWISSIMAGE
95	2731976	1155749	2012	2022	2009	NaN	NaN	0	0	NaN	78	10521.0	30.1	A13o-03	SWISSIMAGE
96	2726222	1149683	2012	2019	2009	2022	cen	1	0	0	54	8329.0	26.2	A13n-04	SWISSIMAGE
97	2774242	1134086	2012	2015	2009	2019	cen	0	1	0	NaN	10413.0	27.7	C83-12	SWISSIMAGE
98	2588295	1094836	2013	2013	2010	2016	cen	0	1	0	51	4887.0	NaN	B83-03	SWISSIMAGE
99	2606361	1090940	2013	2020	2010	2023	mar	1	0	NaN	NaN	9985.0	62.8	B73-12	SWISSIMAGE
100	2608690	1098767	2013	2013	2010	2016	cen	0	1	0	26	1094.0	NaN	B72-15	SWISSIMAGE
101	2609984	1098566	2013	2016	2010	2017	cen	0	1	0	84	3734.0	NaN	B72-11	SWISSIMAGE
102	2616517	1094418	2013	2017	2010	2020	cen	0	1	0	135	24659.0	NaN	B57-05	SWISSIMAGE
103	2616188	1094139	2013	2023	2010	NaN	cen	0	1	0	145	31690.0	73.0	B57-05	SWISSIMAGE
104	2614962	1102174	2013	2020	2010	2023	cen	0	1	0	NaN	23362.0	43.5	B63-05	SWISSIMAGE
105	2618219	1104518	2013	2017	2012	2020	cen	1	0	1	110	16019.0	36.0	B62-10	SWISSIMAGE
106	2610052	1098303	2013	2020	2010	2023	cen	0	1	0	118	17213.0	38.3	B72-11	SWISSIMAGE
107	2677020	1162190	2013	2021	2010	NaN	cen	0	0	1	95	17120.0	26.3	A51e-37	SWISSIMAGE
108	2715248	1183000	2013	2019	2010	2022	mar	0	NaN	NaN	74	8380.0	38.2	A14m-09	SWISSIMAGE
109	2625774	1146168	2014	NaN	2011	NaN	cen	0	NaN	NaN	NaN	83431.0	44.0	A55b-13	SWISSIMAGE
110	2627267	1151377	2014	2018	2011	NaN	cen	0	NaN	NaN	91	11937.0	NaN	A55a-04	SWISSIMAGE
111	2636979	1144903	2014	2017	2011	2020	mar	0	1	0	54	3578.0	26.8	B31-04	SWISSIMAGE
112	2637065	1144911	2014	2023	2011	NaN	mar	0	1	0	80	12299.0	73.4	B31-04	SWISSIMAGE
113	2637159	1144963	2014	NaN	2011	NaN	mar	0	1	NaN	91	11706.0	76.1	B31-04	SWISSIMAGE
114	2646602	1143796	2014	2020	2011	2023	cen	0	1	NaN	86	7476.0	NaN	B36-21	SWISSIMAGE
115	2647699	1142902	2014	NaN	2011	NaN	mar	1	0	NaN	220	50310.0	107.4	B36-26	SWISSIMAGE

116	2622438	1102607	2015	NaN	2012	NaN	cen	1	1	NaN	138	16508.0	40.0	B58-02	SWISSIMAGE
117	2619841	1105354	2015	2020	2013	2023	NaN	1	NaN	NaN	35	2532.0	2.7	B62-08	SWISSIMAGE
118	2621337	1090554	2015	2020	2012	2023	cen	0	NaN	1	NaN	5628.0	10.1	B56-30	SWISSIMAGE
119	2660770	1154350	2015	2018	2012	NaN	cen	0	1	0	44	2744.0	NaN	A54g-03	SWISSIMAGE
120	2774086	1155766	2015	2019	2012	2022	mar	1	0	1	57	5603.0	34.8	E35-17	SWISSIMAGE
121	2792218	1142759	2015	2019	2012	2022	mar	0	1	0	61	10424.0	11.4	E22-03	SWISSIMAGE
122	2585296	1092205	2016	2020	2013	2023	cen	1	1	0	NaN	6981.0	1.8	B84-04	SWISSIMAGE
123	2588332	1094776	2016	2016	2013	2017	cen	0	1	0	46	4846.0	12.6	B83-03	SWISSIMAGE
124	2588410	1094512	2016	2017	2013	2020	cen	0	1	0	96	15181.0	74.0	B83-03	SWISSIMAGE
125	2588490	1094227	2016	2020	2013	2023	cen	1	1	0	161	33004.0	79.1	B83-03	SWISSIMAGE
126	2600068	1089915	2016	2017	2013	2020	NaN	1	0	0	29	1904.0	36.4	B82-23	SWISSIMAGE
127	2608439	1097945	2016	2020	2013	2023	mar	0	NaN	NaN	132	30276.0	79.9	B72-15	SWISSIMAGE
128	2616600	1094098	2016	2020	2013	2023	cen	1	0	1	74	13700.0	31.1	B57-05	SWISSIMAGE
129	2615810	1094135	2016	NaN	2013	NaN	cen	0	1	NaN	260	83212.0	92.3	B57-05	SWISSIMAGE
130	2620465	1097832	2016	2020	2015	2021	cen	1	0	1	79	9081.0	42.6	B57-14	SWISSIMAGE, Spezialbefliegung
131	2615250	1100930	2016	NaN	2013	NaN	mar	1	NaN	NaN	146	24638.0	87.7	B63-05	SWISSIMAGE
132	2615420	1100858	2016	NaN	2013	NaN	cen	1	NaN	NaN	243	58004.0	105.5	B63-05	SWISSIMAGE
133	2619339	1091950	2016	2020	2013	2023	cen	1	1	0	117	14467.0	24.2	B56-31	SWISSIMAGE
134	2676990	1162347	2016	2018	2013	NaN	mar	0	NaN	NaN	89	17990.0	25.5	A51e-37	SWISSIMAGE
135	2676873	1162429	2016	2018	2013	NaN	cen	0	1	NaN	36	2611.0	8.9	A51e-37	SWISSIMAGE
136	2676198	1174110	2016	2018	2013	NaN	cen	0	1	0	79	7008.0	9.8	A54e-12	SWISSIMAGE
137	2683543	1189381	2016	NaN	2013	NaN	mar	1	NaN	NaN	46	3144.0	14.4	A51g-11	SWISSIMAGE
138	2705919	1188377	2016	2021	2013	NaN	cen	0	NaN	NaN	50	4208.0	23.4	A51c-02	SWISSIMAGE
139	2708877	1190186	2016	NaN	2013	NaN	mar	0	NaN	NaN	95	24307.0	44.1	A50j-06	SWISSIMAGE
140	2681769	1174825	2016	NaN	2013	NaN	mar	1	NaN	NaN	NaN	13202.0	36.7	A51f-34	SWISSIMAGE
141	2598708	1087409	2017	2020	2016	2023	cen	0	1	0	100	15780.0	14.9	B82-27	SWISSIMAGE
142	2606533	1091962	2017	2020	2016	2023	cen	1	0	0	NaN	5453.0	29.9	B73-12	SWISSIMAGE
143	2608569	1098305	2017	2020	2016	2023	cen	1	1	NaN	NaN	33522.0	74.3	B72-15	SWISSIMAGE
144	2615432	1094028	2017	NaN	2017	NaN	cen	0	NaN	NaN	171	36946.0	103.7	B57-05	SWISSIMAGE

145	2615147	1101115	2017	NaN	2016	NaN	mar	0	NaN	NaN	150	54720.0	110.7	B63-05	SWISSIMAGE
146	2615627	1100641	2017	2020	2016	2023	cen	1	NaN	NaN	NaN	6705.0	32.7	B63-05	SWISSIMAGE
147	2621824	1102491	2017	NaN	2015	NaN	mar	1	NaN	NaN	71	10001.0	38.6	B58-02	SWISSIMAGE
148	2630686	1095226	2017	2017	2015	2020	mar	0	0	0	37	1740.0	6.8	B56-03	SWISSIMAGE
149	2644298	1104118	2017	2020	2015	2023	cen	0	1	1	39	2800.0	22.6	B52-06	SWISSIMAGE
150	2636942	1144698	2017	NaN	2014	NaN	cen	1	0	0	119	15446.0	33.0	B31-04	SWISSIMAGE
151	2653193	1145388	2017	2017	2014	2020	cen	0	1	0	89	12887.0	42.4	B40-07	SWISSIMAGE
152	2653193	1145644	2017	2020	2014	2023	cen	0	1	NaN	NaN	16643.0	128.1	B40-07	SWISSIMAGE
153	2653152	1146077	2017	NaN	2014	NaN	cen	1	1	NaN	73	21117.0	90.9	B40-07	SWISSIMAGE
154	2607527	1141215	2018	NaN	2016	NaN	cen	0	NaN	NaN	90	14733.0	34.2	A55f-01	SWISSIMAGE
155	2660635	1154265	2018	NaN	2015	NaN	cen	0	1	0	60	9709.0	NaN	A54g-03	SWISSIMAGE
156	2660465	1154197	2018	NaN	2015	NaN	cen	0	NaN	NaN	NaN	12356.0	34.2	A54g-03	SWISSIMAGE
157	2677142	1162234	2018	2021	2016	NaN	cen	0	0	1	111	11008.0	14.7	A51e-37	SWISSIMAGE
158	2681946	1174864	2018	NaN	2016	NaN	cen	0	NaN	NaN	90	12366.0	36.6	A51f-34	SWISSIMAGE
159	2681912	1174705	2018	NaN	2016	NaN	cen	0	NaN	NaN	93	11775.0	42.6	A51f-34	SWISSIMAGE
160	2708991	1190062	2018	NaN	2016	NaN	cen	0	NaN	NaN	108	11799.0	33.1	A50j-06	SWISSIMAGE
161	2683450	1189391	2018	NaN	2016	NaN	mar	0	NaN	NaN	78	6954.0	21.6	A51g-11	SWISSIMAGE
162	2799775	1192738	2019	NaN	2015	NaN	cen	0	1	NaN	79	16495.0	38.3	A10g-05	SWISSIMAGE
163	2794372	1142059	2019	2022	2015	NaN	mar	1	0	NaN	51	1571.0	13.4	E22-03	SWISSIMAGE
164	2791599	1143692	2019	NaN	2015	NaN	mar	1	NaN	NaN	99	28940.0	51.1	E22-03	SWISSIMAGE
165	2791512	1143847	2019	NaN	2015	NaN	mar	1	NaN	NaN	93	21130.0	56.3	E22-03	SWISSIMAGE
166	2788582	1142237	2019	NaN	2015	NaN	mar	1	0	NaN	41	2968.0	22.0	E23-04	SWISSIMAGE
167	2773852	1156825	2019	NaN	2015	NaN	mar	0	0	NaN	22	1153.0	NaN	E35-19	SWISSIMAGE
168	2588340	1094640	2020	2020	2017	2023	cen	0	1	0	69	4533.0	12.9	B83-03	SWISSIMAGE
169	2588453	1094375	2020	2023	2017	NaN	cen	0	1	NaN	123	21766.0	76.4	B83-03	SWISSIMAGE
170	2598832	1087510	2020	2020	2017	2023	cen	1	1	0	47	6657.0	30.8	B82-27	SWISSIMAGE
171	2598951	1087561	2020	2023	2017	NaN	cen	1	1	0	NaN	11139.0	42.8	B82-27	SWISSIMAGE
172	2619362	1104962	2020	2020	2017	2023	cen	1	1	1	NaN	3297.0	16.0	B62-08	SWISSIMAGE
173	2630530	1095387	2020	2020	2017	2021	cen	0	1	0	65	8293.0	22.4	B56-03	SWISSIMAGE, Spezialbefliegung

174	2636442	1102480	2020	2020	2017	2023	cen	0	1	1	23	1505.0	NaN	B53-04	SWISSIMAGE
175	2645818	1110845	2020	2023	2017	NaN	cen	0	1	0	46	4825.0	31.2	C01-04	SWISSIMAGE
176	2609105	1138853	2020	2020	2017	2023	cen	1	NaN	0	31	1029.0	16.0	A55c-13	SWISSIMAGE
177	2617260	1140998	2020	NaN	2017	NaN	cen	0	NaN	NaN	100	15319.0	52.5	A55c-05	SWISSIMAGE
178	2617262	1141134	2020	NaN	2017	NaN	cen	0	NaN	NaN	28	5983.0	20.2	A55c-05	SWISSIMAGE
179	2644927	1145285	2020	NaN	2017	NaN	cen	1	NaN	NaN	91	8077.0	40.1	B36-21	SWISSIMAGE
180	2646373	1144026	2020	2023	2017	NaN	cen	0	0	1	108	17901.0	19.3	B36-21	SWISSIMAGE
181	2681858	1174869	2021	NaN	2018	NaN	mar	1	NaN	NaN	74	4493.0	25.0	A51f-34	SWISSIMAGE
182	2681861	1174932	2021	NaN	2018	NaN	mar	1	NaN	NaN	69	4608.0	16.2	A51f-34	SWISSIMAGE
183	2633465	1149478	2021	NaN	2018	NaN	mar	0	NaN	NaN	25	717.0	NaN	A54m-19	SWISSIMAGE
184	2633641	1149585	2021	2021	2018	NaN	mar	0	NaN	NaN	NaN	6042.0	NaN	A54m-19	SWISSIMAGE
185	2633810	1149588	2021	NaN	2018	NaN	cen	0	1	NaN	53	4132.0	NaN	A54m-19	SWISSIMAGE
186	2633893	1149605	2021	NaN	2018	NaN	cen	0	1	NaN	52	4243.0	NaN	A54m-19	SWISSIMAGE
187	2659974	1161261	2021	NaN	2018	NaN	cen	0	NaN	NaN	27	2872.0	10.7	A54i-02	SWISSIMAGE
188	2787111	1141872	2022	NaN	2019	NaN	cen	1	1	0	71	8089.0	10.6	E23-06	SWISSIMAGE
189	2784141	1139137	2022	NaN	2019	NaN	cen	0	1	1	19	784.0	NaN	E23-11	SWISSIMAGE
190	2645953	1144474	2023	NaN	2020	NaN	cen	0	NaN	NaN	NaN	17629.0	64.1	B36-21	SWISSIMAGE
191	2645771	1144663	2023	NaN	2020	NaN	cen	0	NaN	NaN	NaN	74084.0	56.9	B36-21	SWISSIMAGE
192	2659704	1151808	2023	NaN	2020	NaN	cen	1	NaN	NaN	NaN	15691.0	32.3	B41-07	SWISSIMAGE
193	2637133	1144768	2020	NaN	2017	NaN	cen	0	0	NaN	NaN	11513.0	46.1	B31-04	SWISSIMAGE
194	2608933	1138820	2023	NaN	2020	NaN	cen	1	NaN	NaN	NaN	2191.0	22.0	A55c-13	SWISSIMAGE
195	2652703	1128070	2023	NaN	2020	NaN	NaN	0	NaN	1	NaN	2777.0	13.9	B47-01	SWISSIMAGE
196	2638558	1096918	2023	NaN	2020	NaN	cen	0	NaN	NaN	NaN	20733.0	26.1	B52-24	SWISSIMAGE
197	2636265	1102261	2023	NaN	2020	NaN	cen	0	NaN	NaN	NaN	9413.0	NaN	B53-04	SWISSIMAGE
198	2632450	1100420	2023	NaN	2020	NaN	cen	1	NaN	NaN	NaN	673.0	14.1	B55-16	SWISSIMAGE
199	2630711	1095391	2023	NaN	2020	NaN	cen	0	1	0	NaN	4185.0	12.6	B56-03	SWISSIMAGE
200	2622704	1101179	2023	NaN	2020	NaN	cen	0	1	0	NaN	669.0	4.8	B58-02	SWISSIMAGE

201	2614945	1101413	2023	NaN	2020	NaN	cen	0	NaN	NaN	NaN	74383.0	109.1	B63-05	SWISSIMAGE
202	2637353	1145083	2023	NaN	2020	NaN	cen	1	NaN	NaN	NaN	19840.0	22.9	B31-04	SWISSIMAGE
203	2703140	1177239	2022	NaN	2019	NaN	mar	1	0	NaN	NaN	12996.0	28.1	A51d-15	SWISSIMAGE
204	2703296	1177167	2022	NaN	2019	NaN	mar	1	0	NaN	NaN	29779.0	50.6	A51d-15	SWISSIMAGE
205	2799940	1192746	2021	NaN	NaN	NaN	cen	1	1	NaN	NaN	9151.2	52.1	A10g-05	Spezialbefliegung
206	2619465	1111042	2015	2018	NaN	NaN	cen	0	1	0	NaN	28077.2	46.4	B60-09	Spezialbefliegung
207	2619595	1110833	2016	2021	NaN	NaN	cen	0	1	0	NaN	8897.2	39.2	B60-09	Spezialbefliegung
208	2619725	1110211	2017	2023	NaN	NaN	cen	0	1	NaN	NaN	4132.2	27.1	B60-09	Spezialbefliegung
209	2609036	1139034	2012	2017	NaN	NaN	mar	1	0	0	NaN	4839.9	NaN	A55c-13	Spezialbefliegung
210	2608778	1138818	2019	2022	NaN	NaN	cen	1	1	0	NaN	1472.9	29.0	A55c-13	Spezialbefliegung
211	2609059	1138811	2020	2022	NaN	NaN	cen	0	1	1	NaN	3851.7	28.2	A55c-13	Spezialbefliegung
212	2608988	1138886	2020	2022	NaN	NaN	cen	0	1	0	NaN	2391.7	24.0	A55c-13	Spezialbefliegung
213	2608970	1138648	2021	2022	NaN	NaN	mar	0	1	NaN	NaN	1683.2	23.0	A55c-13	Spezialbefliegung
214	2608959	1138930	2021	2022	NaN	NaN	mar	1	0	0	NaN	1875.7	16.2	A55c-13	Spezialbefliegung
215	2608782	1138884	2021	2022	NaN	NaN	cen	0	0	0	NaN	2521.3	18.5	A55c-13	Spezialbefliegung
216	2608902	1138668	2015	2022	NaN	NaN	cen	1	1	0	NaN	11018.6	42.2	A55c-13	Spezialbefliegung
217	2608838	1139011	2015	2019	NaN	NaN	mar	1	0	0	NaN	2858.7	17.6	A55c-13	Spezialbefliegung
218	2608923	1138976	2015	2020	NaN	NaN	cen	1	0	0	NaN	8170.7	27.7	A55c-13	Spezialbefliegung
219	2608779	1138704	2016	2020	NaN	NaN	mar	0	0	0	NaN	3923.7	46.4	A55c-13	Spezialbefliegung
220	2609142	1138741	2016	2020	NaN	NaN	mar	0	0	1	NaN	7061.8	37.2	A55c-13	Spezialbefliegung
221	2608731	1138936	2016	2020	NaN	NaN	cen	0	0	0	NaN	6367.2	24.9	A55c-13	Spezialbefliegung
222	2608747	1138780	2017	2022	NaN	NaN	cen	1	1	0	NaN	4827.3	35.1	A55c-13	Spezialbefliegung
223	2608854	1138812	2018	2022	NaN	NaN	cen	1	1	0	NaN	3796.6	33.0	A55c-13	Spezialbefliegung