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Identification of the long stellar stream of the prototypical massive globular cluster ω Centauri

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Supplementary Information

Table 1. Candidate members of the Fimbulthul stellar stream.

RA J2000 [deg]	Dec J2000 [deg]	μ_α mas/yr	μ_δ mas/yr	ϖ mas	G_0 [mag]	$(G_{\text{BP}} - G_{\text{RP}})_0$ [mag]
200.478245	-25.511713	-10.610 ± 0.114	-9.710 ± 0.112	0.391 ± 0.073	15.951	0.811
204.456441	-25.702749	-14.119 ± 0.372	-10.936 ± 0.258	0.604 ± 0.168	17.779	0.768
205.286684	-23.989905	-15.146 ± 0.372	-11.223 ± 0.274	0.223 ± 0.156	17.996	0.800
200.220408	-24.769043	-9.488 ± 0.294	-9.677 ± 0.248	0.402 ± 0.136	17.500	0.635
210.247730	-24.296332	-16.371 ± 0.390	-10.787 ± 0.264	0.274 ± 0.171	18.002	0.775
211.095707	-23.212157	-16.720 ± 0.245	-11.470 ± 0.189	0.254 ± 0.124	17.341	0.630
213.725755	-23.819825	-16.934 ± 0.398	-11.491 ± 0.310	0.081 ± 0.192	17.940	0.770
213.443432	-23.784399	-18.403 ± 0.496	-10.558 ± 0.413	-0.151 ± 0.310	18.217	0.744
212.585609	-23.050072	-16.477 ± 0.516	-11.187 ± 0.389	0.211 ± 0.265	18.411	0.846
206.290828	-25.792249	-15.188 ± 0.267	-11.159 ± 0.175	0.223 ± 0.111	17.247	0.666
213.221818	-23.516519	-17.780 ± 1.146	-10.360 ± 0.553	0.715 ± 0.640	18.858	0.920
211.430052	-23.828941	-16.778 ± 0.561	-10.499 ± 0.313	0.467 ± 0.224	18.386	0.725
211.191826	-22.942654	-16.470 ± 0.704	-11.011 ± 0.420	0.030 ± 0.332	18.775	0.854
209.805298	-23.587708	-16.503 ± 0.297	-10.612 ± 0.231	0.272 ± 0.163	17.711	0.663
211.493537	-25.075895	-17.775 ± 0.449	-11.259 ± 0.446	0.076 ± 0.334	18.088	0.853
205.713162	-23.154767	-15.114 ± 0.771	-9.981 ± 0.593	0.689 ± 0.400	19.092	0.871
199.615427	-27.270447	-9.120 ± 0.365	-9.379 ± 0.229	0.426 ± 0.173	17.302	0.614
212.311977	-20.987082	-16.643 ± 0.362	-10.677 ± 0.337	0.034 ± 0.213	18.154	0.771
201.791458	-24.393729	-10.787 ± 0.617	-9.878 ± 0.450	0.521 ± 0.338	18.828	0.872
207.396050	-22.666985	-15.505 ± 0.469	-10.429 ± 0.364	0.621 ± 0.259	18.489	0.822
214.624886	-25.050059	-19.313 ± 0.258	-12.318 ± 0.180	0.285 ± 0.118	17.365	0.718
211.835544	-23.430423	-18.284 ± 0.174	-11.847 ± 0.242	1.799 ± 0.993	15.091	0.870
211.040782	-22.450342	-15.108 ± 0.607	-11.181 ± 0.363	0.111 ± 0.259	18.299	0.658
201.000415	-25.341016	-10.321 ± 0.112	-9.619 ± 0.096	0.220 ± 0.071	16.012	0.872
199.574137	-24.888268	-11.244 ± 0.114	-9.307 ± 0.101	0.396 ± 0.068	16.004	0.781
210.622240	-21.686747	-16.852 ± 0.092	-10.686 ± 0.076	0.380 ± 0.048	15.495	0.881
212.717183	-22.702621	-18.676 ± 0.760	-10.940 ± 0.504	0.527 ± 0.418	18.406	0.856
207.436557	-24.784537	-14.521 ± 0.567	-9.604 ± 0.541	0.069 ± 0.346	18.002	0.749
204.367940	-25.150606	-12.869 ± 0.353	-10.380 ± 0.269	0.120 ± 0.211	16.859	0.613
206.059117	-23.922768	-14.796 ± 0.782	-10.535 ± 0.595	0.586 ± 0.344	18.673	0.996
204.789303	-23.567127	-13.551 ± 0.930	-11.715 ± 0.555	0.401 ± 0.442	18.896	0.892
207.160900	-24.154373	-16.062 ± 1.227	-11.693 ± 1.080	0.551 ± 0.683	19.342	1.075
202.429384	-23.392349	-11.753 ± 0.404	-10.152 ± 0.267	0.438 ± 0.231	18.184	0.781
208.277548	-23.157433	-16.072 ± 0.423	-10.676 ± 0.324	0.424 ± 0.208	17.906	0.752
204.545295	-23.865402	-14.934 ± 0.321	-11.285 ± 0.280	0.457 ± 0.172	17.801	0.696
199.208122	-26.628136	-8.641 ± 0.523	-8.864 ± 0.390	0.361 ± 0.273	17.722	0.630
211.488127	-22.235044	-16.330 ± 0.617	-11.701 ± 0.529	0.579 ± 0.309	18.511	0.849
200.579531	-25.577844	-10.439 ± 0.269	-9.289 ± 0.195	0.012 ± 0.155	17.551	0.676
198.364638	-29.564494	-8.523 ± 0.131	-9.276 ± 0.142	0.369 ± 0.087	16.127	0.751
206.133970	-21.740422	-14.905 ± 0.433	-10.208 ± 0.368	0.483 ± 0.263	18.105	0.738
206.282600	-25.084742	-15.447 ± 0.718	-11.044 ± 0.390	0.176 ± 0.296	17.948	0.785
205.064309	-25.501631	-13.109 ± 0.884	-10.214 ± 0.555	-0.630 ± 0.490	18.789	0.905

203.123984	-24.130599	-12.693 ± 0.726	-10.251 ± 0.649	-0.278 ± 0.435	18.911	0.849
213.750216	-24.482330	-18.236 ± 0.472	-12.899 ± 0.479	0.311 ± 0.269	18.269	0.833
208.990504	-21.834758	-16.439 ± 0.351	-10.607 ± 0.308	0.287 ± 0.247	18.090	0.775
209.002017	-24.970155	-14.571 ± 0.727	-11.185 ± 0.730	-0.042 ± 0.408	18.789	0.926
199.425963	-26.034849	-9.021 ± 0.608	-8.740 ± 0.557	0.508 ± 0.341	18.898	0.807
199.719065	-28.502858	-8.599 ± 0.615	-8.742 ± 0.377	-0.034 ± 0.317	18.688	0.701
204.811271	-21.740558	-13.893 ± 0.285	-10.324 ± 0.257	0.283 ± 0.167	17.635	0.687
212.516537	-24.880345	-18.525 ± 0.518	-12.097 ± 0.375	0.644 ± 0.297	18.107	0.865
205.016534	-25.804183	-14.389 ± 0.713	-10.123 ± 0.391	0.396 ± 0.301	18.585	0.768
203.965418	-24.956110	-14.197 ± 0.150	-10.606 ± 0.109	0.238 ± 0.073	16.260	0.619
200.384753	-25.107010	-9.740 ± 0.287	-8.809 ± 0.233	0.315 ± 0.154	17.543	0.640
199.137646	-27.580112	-7.459 ± 0.491	-8.899 ± 0.312	0.400 ± 0.234	18.132	0.690
201.341284	-23.249296	-11.609 ± 0.541	-9.283 ± 0.437	0.316 ± 0.347	18.523	0.847
211.821417	-24.202858	-17.298 ± 0.483	-11.984 ± 0.399	0.496 ± 0.253	18.496	0.884
199.059154	-26.348514	-7.654 ± 0.610	-8.473 ± 0.511	0.050 ± 0.321	18.865	0.829
200.681330	-27.054977	-10.230 ± 0.429	-9.539 ± 0.390	0.462 ± 0.356	17.953	0.706
207.872477	-22.958176	-15.661 ± 0.226	-10.602 ± 0.191	0.264 ± 0.123	16.888	0.624
203.692473	-25.923062	-12.116 ± 0.711	-10.904 ± 0.846	0.385 ± 0.343	18.750	0.829
201.671910	-24.634539	-11.536 ± 0.440	-9.626 ± 0.341	0.265 ± 0.265	18.585	0.829
209.712474	-21.349837	-17.054 ± 0.333	-10.416 ± 0.416	0.403 ± 0.207	17.388	0.620
215.379822	-24.279005	-18.890 ± 0.400	-12.849 ± 0.227	0.156 ± 0.140	17.174	0.613
208.615022	-23.644737	-15.274 ± 0.134	-10.623 ± 0.113	0.242 ± 0.079	16.091	0.696
211.333185	-22.674597	-16.090 ± 0.483	-11.897 ± 0.463	0.349 ± 0.221	17.899	0.690
212.876126	-22.075139	-17.771 ± 0.420	-11.015 ± 0.238	-0.052 ± 0.179	17.630	0.652
197.625782	-28.537272	-9.318 ± 0.217	-8.470 ± 0.201	0.448 ± 0.156	16.468	0.756
200.593659	-25.747318	-10.065 ± 0.492	-9.570 ± 0.378	-0.185 ± 0.314	18.524	0.779
213.767931	-24.103571	-19.674 ± 0.923	-12.307 ± 0.729	-0.350 ± 0.466	18.515	0.927
199.603197	-26.129589	-8.378 ± 0.225	-8.584 ± 0.185	0.180 ± 0.106	16.996	0.619
200.447235	-25.860750	-9.682 ± 0.647	-9.584 ± 0.456	0.073 ± 0.319	18.439	0.707
199.223674	-25.981717	-9.894 ± 0.368	-8.963 ± 0.333	-0.030 ± 0.217	18.188	0.747
199.744183	-28.501131	-9.614 ± 0.713	-9.402 ± 0.427	0.280 ± 0.356	18.950	0.813
203.819334	-27.021591	-12.991 ± 0.697	-9.450 ± 0.605	0.189 ± 0.370	19.037	0.912
203.436377	-24.401044	-13.554 ± 0.526	-10.567 ± 0.419	0.671 ± 0.305	18.480	0.802
198.138471	-29.992588	-7.997 ± 0.119	-8.460 ± 0.104	0.229 ± 0.065	15.290	0.915
204.541517	-26.412307	-13.686 ± 0.620	-9.839 ± 0.474	-0.057 ± 0.303	18.669	0.893
200.119386	-26.732922	-8.470 ± 1.005	-8.724 ± 0.552	0.325 ± 0.400	19.217	0.928
201.009500	-25.893735	-10.424 ± 0.249	-9.159 ± 0.173	0.067 ± 0.133	17.300	0.660
210.124421	-25.938391	-17.846 ± 0.127	-11.422 ± 0.099	0.289 ± 0.064	15.949	0.733
200.188073	-25.433083	-8.213 ± 0.530	-8.345 ± 0.476	0.407 ± 0.270	18.392	0.752
205.056590	-25.995075	-14.156 ± 0.239	-10.929 ± 0.175	0.383 ± 0.126	16.961	0.604
199.881581	-26.865081	-9.164 ± 0.339	-8.856 ± 0.255	0.353 ± 0.183	17.892	0.690
200.239503	-26.181718	-10.540 ± 0.228	-9.140 ± 0.193	0.274 ± 0.129	17.276	0.619
201.970913	-23.391332	-11.728 ± 0.354	-9.718 ± 0.348	0.285 ± 0.215	17.840	0.712
202.990650	-24.460983	-12.156 ± 1.110	-10.646 ± 0.896	-0.058 ± 0.501	19.484	1.032
201.002884	-24.960240	-9.724 ± 0.920	-8.883 ± 1.010	0.551 ± 0.710	19.249	0.927
200.583901	-27.677274	-8.255 ± 0.813	-8.555 ± 0.510	0.028 ± 0.379	19.221	0.937
201.656237	-27.233748	-10.501 ± 0.316	-9.859 ± 0.237	0.003 ± 0.149	17.846	0.668
210.668225	-25.152417	-16.373 ± 0.813	-11.582 ± 0.488	0.364 ± 0.345	18.801	0.999
201.710484	-24.915956	-10.482 ± 0.508	-9.527 ± 0.354	0.114 ± 0.251	18.652	0.765
202.594103	-22.824094	-11.819 ± 0.367	-9.898 ± 0.289	0.519 ± 0.186	17.578	0.653
201.014866	-24.517959	-8.933 ± 0.519	-9.193 ± 0.622	0.796 ± 0.323	18.300	0.701

205.965513	-24.467561	-14.841 ± 0.140	-10.589 ± 0.113	0.343 ± 0.077	15.922	0.672
200.816806	-25.627630	-10.810 ± 0.493	-9.890 ± 0.352	0.169 ± 0.233	18.602	0.757
203.787421	-23.516247	-13.137 ± 0.599	-10.290 ± 0.691	0.592 ± 0.304	18.310	0.793
213.845138	-23.513263	-18.897 ± 0.474	-12.508 ± 0.329	0.053 ± 0.214	18.339	0.838
204.756688	-24.011491	-12.436 ± 0.384	-10.205 ± 0.414	0.211 ± 0.234	18.203	0.642
207.032281	-23.698005	-13.977 ± 0.336	-9.888 ± 0.286	0.602 ± 0.197	17.639	0.637
207.186008	-22.953158	-14.538 ± 0.216	-10.827 ± 0.186	0.350 ± 0.117	17.242	0.685
205.381512	-24.235864	-13.106 ± 0.152	-10.249 ± 0.117	0.338 ± 0.077	16.549	0.637
211.728571	-21.756465	-18.155 ± 0.392	-12.286 ± 0.270	0.309 ± 0.225	18.289	0.824
200.839233	-26.632431	-11.362 ± 1.055	-9.320 ± 0.715	0.624 ± 0.639	19.120	0.846
203.928689	-25.949002	-11.856 ± 0.267	-10.086 ± 0.218	0.232 ± 0.136	17.077	0.641
208.649098	-25.345305	-17.109 ± 0.506	-10.862 ± 0.346	0.161 ± 0.294	18.402	0.841
205.609983	-21.867354	-14.196 ± 0.759	-10.715 ± 0.509	0.267 ± 0.321	19.009	0.970
201.650688	-24.364240	-12.258 ± 0.336	-9.193 ± 0.220	0.236 ± 0.159	17.752	0.710
200.564886	-25.273275	-9.253 ± 0.220	-8.944 ± 0.176	0.234 ± 0.109	17.265	0.612
206.909294	-22.622084	-14.261 ± 0.416	-10.731 ± 0.375	0.005 ± 0.239	18.266	0.794
203.512769	-26.074549	-12.563 ± 0.640	-10.821 ± 0.475	0.736 ± 0.321	18.784	0.819
208.900414	-24.492546	-15.592 ± 0.400	-10.370 ± 0.290	0.353 ± 0.177	17.587	0.643
207.657359	-22.498979	-14.646 ± 0.348	-10.975 ± 0.293	0.551 ± 0.247	17.871	0.700
198.054326	-29.308751	-8.140 ± 0.378	-8.850 ± 0.400	-0.149 ± 0.239	18.077	0.688
196.332731	-29.054433	-8.383 ± 0.618	-7.842 ± 0.512	0.714 ± 0.273	18.458	0.722
206.315225	-25.355563	-15.336 ± 0.464	-11.056 ± 0.402	0.484 ± 0.238	18.172	0.793
213.802999	-26.148244	-18.583 ± 0.811	-12.413 ± 0.667	0.405 ± 0.432	19.296	1.041
201.273594	-26.476406	-11.959 ± 0.403	-9.480 ± 0.271	0.519 ± 0.167	17.985	0.767
206.755557	-23.229435	-15.426 ± 0.173	-10.072 ± 0.152	0.470 ± 0.108	16.408	0.643
204.368205	-24.704211	-12.699 ± 0.162	-9.872 ± 0.128	0.214 ± 0.081	16.350	0.802
208.020234	-24.494542	-14.405 ± 0.349	-10.857 ± 0.226	0.173 ± 0.153	17.732	0.676
199.870746	-26.059946	-9.939 ± 0.207	-8.922 ± 0.144	0.135 ± 0.100	17.028	0.704
209.020749	-23.422489	-15.622 ± 0.746	-10.094 ± 0.626	0.212 ± 0.324	19.095	0.965
203.526156	-27.616747	-13.084 ± 0.137	-10.228 ± 0.123	0.145 ± 0.087	16.241	0.691
202.290590	-25.854206	-11.529 ± 0.814	-9.852 ± 0.366	0.259 ± 0.229	18.463	0.781
203.239283	-24.195911	-11.941 ± 1.036	-10.847 ± 0.719	-0.831 ± 0.661	19.410	0.972
198.927317	-28.178142	-12.672 ± 0.867	-9.209 ± 0.497	0.137 ± 0.349	18.661	0.778
197.964451	-26.482266	-9.839 ± 0.170	-8.608 ± 0.145	0.390 ± 0.109	16.490	0.785
201.123056	-29.881931	-5.347 ± 0.153	-7.743 ± 0.146	0.368 ± 0.079	16.463	0.805
206.614519	-24.198191	-14.523 ± 0.358	-9.855 ± 0.238	0.089 ± 0.160	17.745	0.687
201.750769	-25.294785	-11.198 ± 0.192	-9.645 ± 0.153	0.333 ± 0.099	16.800	0.642
200.420327	-26.377963	-10.711 ± 0.285	-9.342 ± 0.223	0.309 ± 0.133	16.795	0.723
209.847680	-22.968746	-16.940 ± 0.573	-12.056 ± 0.409	0.205 ± 0.233	18.551	0.967
202.347219	-25.590229	-11.019 ± 0.488	-9.588 ± 0.437	0.280 ± 0.296	18.313	0.747
203.499523	-24.328886	-15.162 ± 0.166	-9.833 ± 0.134	0.266 ± 0.092	16.610	0.769
208.293936	-23.178854	-15.768 ± 0.563	-11.413 ± 0.527	0.354 ± 0.279	17.925	0.744
200.195255	-25.490186	-10.110 ± 0.226	-8.895 ± 0.214	0.230 ± 0.130	17.253	0.623
204.268515	-26.438289	-12.715 ± 1.261	-10.259 ± 0.717	0.567 ± 0.648	19.243	0.878
200.992352	-24.862417	-10.876 ± 0.303	-9.222 ± 0.283	0.415 ± 0.205	17.537	0.679
203.032446	-24.583901	-11.815 ± 0.885	-11.291 ± 0.784	0.133 ± 0.443	19.270	0.882
199.108879	-28.397778	-10.103 ± 1.044	-8.931 ± 0.929	0.409 ± 0.455	19.268	0.921
207.591209	-21.321030	-13.618 ± 0.520	-11.357 ± 0.397	0.412 ± 0.270	18.426	0.730
199.896337	-28.057683	-8.225 ± 0.450	-8.540 ± 0.386	-0.052 ± 0.234	18.118	0.706
207.805354	-23.625162	-14.549 ± 0.199	-10.730 ± 0.130	0.249 ± 0.088	16.822	0.611
203.029388	-24.522902	-11.650 ± 0.273	-9.642 ± 0.339	0.032 ± 0.150	17.197	0.624

207.916982	-23.225683	-14.525 ± 0.264	-10.726 ± 0.226	0.419 ± 0.163	17.132	0.631
201.856375	-24.252722	-11.334 ± 0.492	-9.253 ± 0.414	0.352 ± 0.260	18.297	0.785
203.617119	-25.168676	-12.406 ± 0.508	-10.068 ± 0.416	0.039 ± 0.308	18.041	0.744
205.084946	-23.274367	-12.410 ± 0.452	-9.220 ± 0.351	0.296 ± 0.270	18.334	0.745
202.804792	-23.655294	-12.717 ± 0.232	-9.424 ± 0.267	0.235 ± 0.127	16.842	0.625
201.971293	-24.726314	-10.364 ± 0.761	-8.901 ± 0.614	1.026 ± 0.424	19.056	0.951
205.690030	-25.579437	-14.011 ± 0.319	-10.921 ± 0.288	0.024 ± 0.145	17.546	0.715
201.252949	-25.934973	-8.952 ± 1.116	-9.449 ± 0.882	-0.241 ± 0.501	19.338	0.898
201.555244	-24.467681	-10.089 ± 0.497	-9.222 ± 0.287	0.332 ± 0.202	18.346	0.701
203.398436	-23.567891	-12.329 ± 0.532	-10.239 ± 0.399	0.485 ± 0.342	18.680	0.887
204.061130	-24.229773	-13.283 ± 0.943	-10.881 ± 0.772	0.100 ± 0.440	19.266	0.981
204.210345	-26.139064	-13.455 ± 0.334	-10.199 ± 0.246	0.219 ± 0.184	17.619	0.678
200.121706	-25.307734	-10.954 ± 0.612	-9.662 ± 0.540	0.039 ± 0.384	18.701	0.737
204.259866	-25.108977	-14.282 ± 0.393	-10.330 ± 0.277	0.137 ± 0.164	17.612	0.687
199.282096	-31.123456	-7.677 ± 0.618	-8.930 ± 0.441	-0.007 ± 0.343	18.609	0.805
200.105348	-24.233414	-11.092 ± 0.601	-8.590 ± 0.426	-0.056 ± 0.323	18.318	0.755
199.417292	-28.543903	-10.930 ± 0.195	-8.999 ± 0.186	0.254 ± 0.115	17.114	0.618
208.119087	-24.391592	-16.032 ± 1.166	-11.166 ± 0.737	-0.157 ± 0.503	19.466	0.878
200.852918	-26.631795	-10.800 ± 0.450	-8.930 ± 0.297	-0.011 ± 0.207	17.714	0.648
205.628193	-22.400557	-12.863 ± 0.884	-10.881 ± 0.803	0.587 ± 0.445	19.430	0.959
198.285021	-28.509099	-9.644 ± 0.252	-8.463 ± 0.172	0.425 ± 0.115	16.919	0.617
203.960327	-23.144826	-14.619 ± 1.047	-9.541 ± 0.885	-0.737 ± 0.597	19.416	0.855
206.213677	-23.315705	-13.834 ± 0.265	-11.112 ± 0.217	0.292 ± 0.132	17.613	0.707
203.060685	-25.687245	-12.314 ± 0.147	-9.225 ± 0.125	0.313 ± 0.074	16.446	0.674
198.137901	-26.941616	-7.692 ± 1.114	-8.442 ± 0.710	0.619 ± 0.593	19.056	0.865
211.942625	-26.003374	-19.218 ± 0.365	-11.570 ± 0.394	0.181 ± 0.361	17.773	0.827
200.568988	-27.408707	-11.076 ± 0.659	-8.775 ± 0.343	0.284 ± 0.247	18.608	0.855
201.417116	-23.916909	-9.800 ± 0.515	-9.857 ± 0.345	0.066 ± 0.233	18.533	0.758
206.615201	-26.057939	-15.461 ± 0.156	-10.418 ± 0.168	0.449 ± 0.095	15.996	0.791
204.638984	-25.570875	-14.435 ± 0.865	-9.782 ± 0.675	0.548 ± 0.363	18.896	0.977
200.946317	-27.270416	-11.465 ± 1.133	-9.026 ± 0.810	0.478 ± 0.432	19.117	0.930
203.654671	-21.428071	-12.061 ± 0.551	-10.658 ± 0.420	0.238 ± 0.265	18.626	0.802
202.940740	-23.893063	-11.682 ± 0.733	-9.567 ± 0.737	0.291 ± 0.371	19.046	0.915
198.797114	-28.335487	-8.002 ± 1.073	-8.694 ± 0.557	0.177 ± 0.445	18.884	0.768
208.578909	-23.963431	-15.568 ± 0.607	-10.746 ± 0.478	0.722 ± 0.351	18.720	0.822
205.081835	-25.051242	-14.176 ± 0.658	-10.724 ± 0.439	0.796 ± 0.346	18.933	0.914
200.331997	-26.989695	-9.102 ± 0.653	-8.676 ± 0.429	0.705 ± 0.305	18.733	0.818
202.463854	-28.314013	-12.715 ± 0.256	-9.558 ± 0.218	0.535 ± 0.148	15.396	0.885
199.959163	-27.370097	-9.326 ± 0.360	-9.167 ± 0.267	0.310 ± 0.182	17.875	0.678
199.989820	-27.615239	-8.925 ± 0.909	-9.104 ± 0.673	-0.232 ± 0.381	18.912	0.880
202.992366	-26.019956	-12.963 ± 0.673	-10.575 ± 0.586	0.431 ± 0.304	18.144	0.717
202.181687	-23.497025	-13.000 ± 0.617	-10.469 ± 0.554	0.409 ± 0.325	18.744	0.866
203.705130	-24.108215	-12.648 ± 0.700	-9.892 ± 0.565	0.156 ± 0.379	19.063	0.902
203.299855	-23.162173	-11.553 ± 0.821	-10.418 ± 0.517	1.023 ± 0.449	18.805	0.905
201.635319	-26.793892	-11.795 ± 0.599	-9.615 ± 0.451	0.415 ± 0.281	18.249	0.731
198.116464	-26.374717	-8.649 ± 0.111	-8.138 ± 0.090	0.327 ± 0.065	15.810	0.866
205.259763	-23.820050	-15.326 ± 0.580	-10.787 ± 0.443	0.571 ± 0.254	18.741	0.892
203.281940	-24.319633	-13.217 ± 0.265	-9.740 ± 0.226	0.281 ± 0.157	17.501	0.699
199.954270	-28.105013	-10.805 ± 0.136	-9.006 ± 0.148	0.211 ± 0.083	15.688	0.904
203.281748	-23.006686	-12.830 ± 0.380	-10.433 ± 0.272	0.525 ± 0.222	17.988	0.774
202.496270	-24.755705	-12.717 ± 0.246	-9.317 ± 0.204	0.460 ± 0.183	17.510	0.622

206.565302	-24.699512	-13.680 ± 0.537	-10.050 ± 0.519	0.486 ± 0.245	18.439	0.792
208.831549	-22.971256	-14.785 ± 0.104	-10.992 ± 0.076	0.334 ± 0.046	15.323	0.903
210.598066	-23.723185	-17.832 ± 0.173	-12.883 ± 0.179	0.251 ± 0.097	16.323	0.681
202.314116	-23.856280	-11.896 ± 0.347	-9.992 ± 0.223	0.117 ± 0.163	17.760	0.647
202.849947	-23.559100	-12.984 ± 0.958	-9.115 ± 0.944	-0.154 ± 0.436	19.141	0.917
202.468189	-27.385768	-11.790 ± 0.868	-9.525 ± 0.384	0.648 ± 0.330	18.535	0.854
204.308451	-25.356593	-13.328 ± 0.525	-10.654 ± 0.341	0.779 ± 0.246	18.447	0.857
200.057619	-25.901885	-9.397 ± 0.153	-8.705 ± 0.127	0.300 ± 0.075	16.414	0.765
201.991001	-24.009021	-12.227 ± 0.641	-9.032 ± 0.712	-0.337 ± 0.418	18.693	0.835
204.587465	-23.369272	-13.628 ± 0.348	-9.950 ± 0.291	0.398 ± 0.210	17.983	0.705
199.316649	-32.285540	-6.958 ± 0.245	-7.863 ± 0.198	0.230 ± 0.143	17.200	0.625
208.857009	-22.579679	-16.457 ± 0.561	-12.048 ± 0.548	-0.224 ± 0.326	18.451	0.818
203.943483	-23.007140	-13.804 ± 0.415	-10.156 ± 0.336	0.295 ± 0.210	17.759	0.720
206.301686	-24.988700	-15.602 ± 0.215	-9.856 ± 0.151	0.371 ± 0.115	16.184	0.774
201.809809	-25.537511	-10.974 ± 0.436	-9.621 ± 0.354	0.327 ± 0.234	18.318	0.726
199.371657	-27.512771	-8.775 ± 0.971	-8.946 ± 0.748	-0.542 ± 0.755	18.979	0.859
208.080513	-23.297322	-16.040 ± 0.569	-10.164 ± 0.525	0.107 ± 0.343	18.069	0.734
200.688401	-27.571400	-12.427 ± 0.278	-9.144 ± 0.217	0.292 ± 0.138	17.480	0.626
202.643162	-25.443819	-11.017 ± 0.630	-10.620 ± 0.557	-0.379 ± 0.450	18.599	0.816
201.431698	-25.007011	-10.896 ± 0.161	-9.310 ± 0.175	0.249 ± 0.094	16.608	0.654
199.317154	-26.774449	-8.745 ± 0.254	-8.961 ± 0.216	0.207 ± 0.114	16.442	0.764
202.558441	-23.963851	-12.388 ± 0.203	-9.388 ± 0.143	0.225 ± 0.096	17.089	0.604
201.509668	-25.662120	-11.252 ± 0.390	-8.937 ± 0.294	0.656 ± 0.225	17.948	0.660
206.244767	-24.400567	-14.716 ± 0.156	-9.861 ± 0.162	0.089 ± 0.092	16.141	0.796
202.226890	-24.870215	-12.658 ± 0.391	-8.926 ± 0.389	0.441 ± 0.258	18.051	0.752
200.670438	-27.468054	-10.716 ± 0.131	-8.574 ± 0.088	0.227 ± 0.058	15.628	0.884
202.857417	-27.340111	-12.319 ± 0.177	-10.148 ± 0.197	0.353 ± 0.088	16.356	0.661
202.505173	-25.937347	-12.254 ± 0.108	-8.702 ± 0.131	0.296 ± 0.061	14.989	0.949
208.686593	-24.280031	-16.712 ± 0.500	-11.024 ± 0.374	0.509 ± 0.302	18.300	0.776
208.681312	-22.297687	-17.042 ± 0.660	-11.649 ± 0.599	-0.136 ± 0.382	18.690	0.929
206.025223	-26.355689	-15.150 ± 0.204	-10.704 ± 0.170	0.027 ± 0.121	16.951	0.638
202.294309	-23.267356	-11.583 ± 0.321	-10.176 ± 0.276	0.125 ± 0.206	17.944	0.760
201.965583	-24.977537	-12.476 ± 0.543	-9.586 ± 0.386	0.226 ± 0.254	18.493	0.856
202.563828	-23.793359	-11.503 ± 0.172	-10.064 ± 0.133	0.185 ± 0.102	16.940	0.634
206.702067	-21.837564	-15.194 ± 0.166	-11.095 ± 0.137	0.109 ± 0.083	16.547	0.615
207.137451	-23.894656	-16.270 ± 0.359	-11.217 ± 0.242	0.216 ± 0.153	17.453	0.698
204.330526	-23.661361	-13.112 ± 0.567	-11.090 ± 0.644	-0.017 ± 0.488	18.337	0.738
200.291401	-26.516432	-11.321 ± 0.088	-9.193 ± 0.064	0.185 ± 0.043	12.167	1.182
198.722560	-28.031603	-9.008 ± 0.417	-8.276 ± 0.265	0.294 ± 0.197	18.051	0.672
202.553243	-24.105328	-11.549 ± 0.583	-9.938 ± 0.433	0.866 ± 0.328	18.986	1.003
210.623721	-25.133652	-18.476 ± 0.796	-11.927 ± 0.500	0.666 ± 0.355	18.992	0.953
205.026131	-24.983129	-14.674 ± 0.725	-10.579 ± 0.440	0.180 ± 0.360	18.765	0.968
205.321968	-26.740054	-14.247 ± 0.399	-10.689 ± 0.313	0.451 ± 0.245	18.112	0.807
205.839422	-24.666363	-14.005 ± 0.791	-9.485 ± 0.513	-0.007 ± 0.381	19.124	0.923
206.242012	-23.878742	-14.560 ± 0.358	-10.155 ± 0.252	0.368 ± 0.148	17.388	0.619
201.654319	-28.494640	-6.645 ± 0.716	-7.656 ± 0.483	0.077 ± 0.352	18.948	0.784
202.470611	-25.084004	-12.210 ± 0.061	-9.408 ± 0.062	0.189 ± 0.038	13.425	1.018
203.037540	-22.826473	-11.720 ± 0.420	-10.420 ± 0.436	0.077 ± 0.224	18.320	0.804
200.537578	-25.533007	-10.712 ± 0.166	-9.126 ± 0.151	0.103 ± 0.111	16.836	0.657
208.593627	-25.682602	-16.541 ± 0.261	-11.574 ± 0.218	0.047 ± 0.140	17.773	0.701
199.011313	-28.054953	-10.216 ± 1.136	-8.598 ± 0.952	-0.100 ± 0.494	19.349	0.943

199.827615	-28.244061	-10.293 ± 0.325	-9.022 ± 0.265	0.028 ± 0.171	17.875	0.673
207.297152	-23.729362	-16.817 ± 0.486	-11.818 ± 0.405	0.442 ± 0.238	17.956	0.776
198.117092	-26.705295	-8.422 ± 0.632	-7.703 ± 0.661	0.219 ± 0.426	18.889	0.763
200.145035	-27.409562	-10.631 ± 0.492	-8.354 ± 0.402	-0.052 ± 0.345	18.467	0.700
202.340711	-25.340987	-11.785 ± 0.354	-9.032 ± 0.247	0.146 ± 0.162	17.734	0.707
198.972317	-26.280782	-8.494 ± 0.812	-7.996 ± 0.509	0.435 ± 0.364	19.162	0.855
204.709940	-23.452440	-13.913 ± 0.377	-9.337 ± 0.391	-0.037 ± 0.251	18.184	0.730
208.966474	-22.625132	-17.111 ± 0.282	-10.503 ± 0.354	0.286 ± 0.146	16.805	0.638
204.964984	-23.028528	-13.409 ± 0.897	-10.099 ± 0.517	0.887 ± 0.349	19.122	0.881
203.183701	-25.830129	-12.452 ± 0.223	-9.073 ± 0.131	0.209 ± 0.098	16.924	0.615
208.211866	-25.618493	-16.966 ± 0.279	-11.368 ± 0.215	0.240 ± 0.148	17.530	0.723
205.597014	-25.009721	-14.069 ± 0.049	-10.616 ± 0.043	0.250 ± 0.023	12.969	1.042
209.764113	-24.644513	-17.831 ± 0.292	-11.670 ± 0.231	0.523 ± 0.146	17.603	0.759
207.738904	-25.790243	-16.329 ± 0.190	-11.276 ± 0.150	0.231 ± 0.125	16.612	0.613
205.607603	-24.113613	-15.068 ± 0.817	-9.896 ± 0.692	-0.194 ± 0.426	19.297	0.950
203.059319	-24.065062	-12.981 ± 0.325	-9.786 ± 0.270	-0.028 ± 0.190	17.828	0.680
206.287928	-24.532107	-13.862 ± 0.516	-10.030 ± 0.519	-0.142 ± 0.294	18.139	0.711
200.252030	-25.338075	-9.785 ± 0.516	-9.804 ± 0.580	0.262 ± 0.276	18.233	0.669
205.113241	-22.360933	-13.150 ± 0.189	-10.719 ± 0.150	0.442 ± 0.118	16.856	0.622
204.682433	-23.572740	-13.902 ± 0.289	-10.110 ± 0.241	0.132 ± 0.153	17.416	0.656
208.826959	-22.329851	-16.888 ± 0.670	-11.377 ± 0.759	0.691 ± 0.444	18.562	0.824
211.589108	-23.575571	-19.607 ± 0.522	-13.428 ± 0.349	0.388 ± 0.216	18.283	0.884
203.660136	-22.827205	-14.706 ± 0.912	-10.314 ± 0.825	0.425 ± 0.532	19.172	0.913
200.381675	-28.432747	-7.673 ± 0.621	-8.051 ± 0.540	0.067 ± 0.387	18.791	0.809
210.597938	-21.516496	-16.911 ± 0.303	-11.440 ± 0.232	0.372 ± 0.139	17.029	0.629
199.595501	-27.708973	-9.945 ± 0.216	-8.507 ± 0.147	0.300 ± 0.101	17.073	0.626
204.391413	-26.175458	-13.741 ± 0.524	-10.328 ± 0.330	0.453 ± 0.203	18.070	0.726
200.167403	-26.273048	-9.026 ± 0.410	-8.417 ± 0.247	0.519 ± 0.167	17.701	0.626
200.931559	-25.552746	-10.150 ± 0.393	-9.718 ± 0.284	0.520 ± 0.198	18.262	0.656
202.239355	-26.567735	-10.585 ± 1.476	-9.228 ± 0.552	-0.014 ± 0.433	18.743	0.841
202.712868	-23.917130	-11.387 ± 0.172	-10.419 ± 0.141	0.142 ± 0.083	16.537	0.805
198.020866	-29.283971	-8.761 ± 0.468	-7.812 ± 0.484	0.436 ± 0.306	18.442	0.738
197.917173	-28.589611	-8.608 ± 0.678	-8.309 ± 0.492	0.475 ± 0.347	18.746	0.793
199.324520	-26.127827	-9.226 ± 0.529	-8.487 ± 0.517	-0.257 ± 0.289	18.691	0.707
204.668660	-26.288349	-14.042 ± 0.660	-9.778 ± 0.499	0.007 ± 0.312	18.544	0.796
206.463384	-23.539151	-14.579 ± 0.769	-10.470 ± 0.717	0.242 ± 0.453	19.115	0.930
202.551851	-24.336371	-12.237 ± 0.304	-9.041 ± 0.241	0.214 ± 0.184	17.986	0.665
198.235735	-29.400943	-8.958 ± 0.643	-8.252 ± 0.931	0.331 ± 0.337	18.643	0.702
210.727562	-24.062494	-18.440 ± 0.293	-12.461 ± 0.251	0.224 ± 0.137	17.237	0.676
200.620661	-28.692429	-10.623 ± 0.358	-8.894 ± 0.270	0.177 ± 0.195	18.137	0.642
198.272159	-29.283850	-10.092 ± 0.143	-8.440 ± 0.180	0.382 ± 0.071	16.206	0.793
198.281517	-29.284918	-8.631 ± 0.451	-8.101 ± 0.592	0.162 ± 0.254	18.181	0.746
206.513409	-21.998586	-16.263 ± 0.733	-11.354 ± 0.635	-0.022 ± 0.401	18.968	0.994
200.925317	-26.978009	-12.296 ± 0.491	-9.578 ± 0.418	0.122 ± 0.285	18.303	0.721
206.333215	-21.819678	-15.204 ± 0.645	-11.444 ± 0.632	0.479 ± 0.372	18.938	0.910
203.514397	-22.898630	-13.639 ± 0.964	-9.944 ± 0.707	-0.474 ± 0.532	19.380	0.932
198.866831	-30.674955	-6.973 ± 0.195	-7.385 ± 0.157	0.304 ± 0.101	16.902	0.686
202.063229	-23.886834	-12.090 ± 0.488	-10.326 ± 0.474	0.048 ± 0.258	18.414	0.806
197.468169	-29.421365	-8.682 ± 0.223	-8.258 ± 0.200	0.213 ± 0.129	17.161	0.649
202.470324	-24.439468	-11.199 ± 0.091	-10.354 ± 0.061	0.182 ± 0.038	12.747	1.073
208.078113	-21.973388	-16.193 ± 0.619	-11.324 ± 0.621	0.546 ± 0.399	19.026	0.948

199.708497	-28.250807	-11.227 ± 0.315	-8.525 ± 0.214	0.047 ± 0.156	17.855	0.686
209.563518	-22.196388	-17.456 ± 0.209	-11.447 ± 0.154	0.345 ± 0.096	17.053	0.631
205.753698	-25.000373	-14.776 ± 1.268	-11.961 ± 0.548	-0.041 ± 0.364	19.033	1.000
198.188273	-30.123121	-9.911 ± 0.243	-8.212 ± 0.310	0.313 ± 0.171	17.192	0.629
208.816759	-21.251333	-16.513 ± 0.295	-12.980 ± 0.269	0.376 ± 0.193	17.755	0.707
198.943666	-29.570476	-9.158 ± 0.702	-7.756 ± 0.494	0.348 ± 0.317	18.597	0.714
209.606428	-22.733933	-15.997 ± 0.691	-11.212 ± 0.452	-0.105 ± 0.264	18.609	0.715
200.850578	-27.478016	-9.963 ± 0.675	-8.608 ± 0.688	0.102 ± 0.435	18.427	0.742
207.531100	-22.382601	-15.075 ± 0.307	-11.944 ± 0.235	0.547 ± 0.201	17.433	0.675
201.393692	-25.253069	-11.422 ± 0.234	-8.610 ± 0.223	0.231 ± 0.152	17.142	0.636
200.453453	-26.122616	-10.515 ± 0.352	-8.284 ± 0.304	0.502 ± 0.222	17.099	0.672
202.715144	-25.025082	-12.282 ± 0.574	-8.829 ± 0.462	-0.300 ± 0.282	18.578	0.735