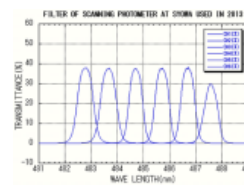


Scanning Photometer (SPM) at Syowa Station

- Observation site : Syowa Station, Antarctica
- Observation location : geographic latitude (deg): -69.00, longitude (deg): 39.58
- Photometers: 8ch with 8 different interference filters & photomultipliers; FOV: 3.0 deg
- Scanning speed : 180deg/10sec
- Scanning direction: Along magnetic meridian: 0 deg: magnetic north 180 deg: magnetic south
- Data recording: Sampling rate: 20Hz, A/D resolution: 16bit
- Responsible organization: Space and Upper Atmospheric Sciences group, National Institute of Polar Research, Tokyo, Japan
- Contact: Akira kadokura (kadokura(at)nipr.ac.jp)



Optical observation at Syowa

SPM optical part

optical head

SPM controller

Transmittance of H β filters

<Specifications of each 8 channel of SPM>

set-1 in 2009 (JARE-50), 2010 (JARE-51)

2009-2010							until 2009/5/23			from 2009/5/24			
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	485.5	2.93	4.0	10	1.22E-02	8.20E+01	8.20E+02	10	1.22E-02	8.20E+01	8.20E+02
2	3.0	R928	484.50	0.59	4.0	40	1.22E-03	8.22E+02	8.22E+03	200	6.08E-03	1.64E+02	1.64E+03
3	3.0	R928	485.50	0.59	4.0	100.0	8.80E-04	1.14E+03	1.14E+04	700.0	6.16E-03	1.62E+02	1.62E+03
4	3.0	R928	486.50	0.63	4.0	30	1.28E-03	7.80E+02	7.80E+03	200	8.55E-03	1.17E+02	1.17E+03
5	3.0	R928	487.50	0.92	4.0	10.0	3.33E-03	3.00E+02	3.00E+03	30.0	9.99E-03	1.00E+02	1.00E+03
	deg		nm	nm	V	times	V/R	R/V	R	times	V/R	R/V	R
6	3.0	R636-10	630.00	1.11	4.5	1000.0	1.95E-04	5.14E+03	5.14E+04	1000.0	1.95E-04	5.14E+03	5.14E+04
7	3.0	R636-10	670.50	5.24	4.5	1000.0	4.27E-04	2.34E+03	2.34E+04	1000.0	4.27E-04	2.34E+03	2.34E+04
8	3.0	R636-10	844.60	0.81	4.0	1000.0	1.84E-04	5.43E+03	5.43E+04	1000.0	1.84E-04	5.43E+03	5.43E+04

set-2 in 2011(JARE-52)

2011							until 2011/3/4			from 2011/3/5			
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	485.5	2.85	4.0	50	1.65E-02	6.07E+01	6.07E+02	50	1.65E-02	6.07E+01	6.07E+02
2	3.0	R928	484.50	0.57	4.0	200	1.23E-02	8.16E+01	8.16E+02	200	1.23E-02	8.16E+01	8.16E+02
3	3.0	R928	485.50	0.58	4.0	200	5.24E-03	1.91E+02	1.91E+03	500	1.31E-02	7.64E+01	7.64E+02
4	3.0	R928	486.50	0.59	4.0	50	6.41E-03	1.56E+02	1.56E+03	100	1.28E-02	7.80E+01	7.80E+02
5	3.0	R928	487.50	0.60	4.0	100	5.51E-03	1.81E+02	1.81E+03	300	1.65E-02	6.05E+01	6.05E+02
	deg		nm	nm	V	times	V/R	R/V	R	times	V/R	R/V	R
6	3.0	R636-10	630.00	0.46	4.5	1000	5.50E-04	1.82E+03	1.82E+04	1000	5.50E-04	1.82E+03	1.82E+04
7	3.0	R636-10	670.50	4.32	4.5	1000	1.98E-03	5.04E+02	5.04E+03	300	5.95E-04	1.68E+03	1.68E+04
8	3.0	R636-10	844.60	0.69	4.0	1000	4.44E-04	2.25E+03	2.25E+04	1000	4.44E-04	2.25E+03	2.25E+04

set-1 in 2012 (JARE-53)

2012									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	485.5	2.971	4.0	10	1.10E-02	9.07E+01	9.07E+02
2	3.0	R928	484.50	0.590	4.0	400	1.23E-02	8.14E+01	8.14E+02
3	3.0	R928	485.50	0.579	4.0	1000	7.93E-03	1.26E+02	1.26E+03
4	3.0	R928	486.50	0.642	4.0	300	1.43E-02	7.01E+01	7.01E+02
5	3.0	R928	487.50	0.915	4.0	60	1.79E-02	5.59E+01	5.59E+02
	deg		nm	nm	V	times	R/V	R/V	R
6	3.0	R636-10	630.00	1.106	4.5	1000	1.94E-04	5.15E+03	5.15E+04
7	3.0	R636-10	670.50	5.253	4.5	1000	5.34E-04	1.87E+03	1.87E+04
8	3.0	R636-10	844.60	0.802	4.0	1000	1.61E-04	6.22E+03	6.22E+04

set-2 in 2013(JARE-54)

2013									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.57	0.67	4.0	300	1.66E-02	6.04E+01	6.04E+02
2	3.0	R928	483.46	0.66	4.0	300	1.65E-02	6.07E+01	6.07E+02
3	3.0	R928	484.50	0.57	4.0	200	1.55E-02	6.46E+01	6.46E+02
4	3.0	R928	485.49	0.58	4.0	400	1.65E-02	6.05E+01	6.05E+02
5	3.0	R928	486.50	0.58	4.0	100	1.81E-02	5.51E+01	5.51E+02
6	3.0	R928	487.38	0.58	4.0	300	2.00E-02	5.01E+01	5.01E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	4.33	5.0	300	6.33E-04	1.58E+03	1.58E+04
8	3.0	R636-10	844.60	0.71	5.0	1000	5.53E-04	1.81E+03	1.81E+04

set-1 in 2014(JARE-55)

2014									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.58	0.67	4.0	200	1.95E-02	5.13E+01	5.13E+02
2	3.0	R928	483.61	0.67	4.0	100	1.64E-02	6.09E+01	6.09E+02
3	3.0	R928	484.54	0.59	4.0	500	1.76E-02	5.69E+01	5.69E+02
4	3.0	R928	485.60	0.59	4.0	1000	9.93E-03	1.01E+02	1.01E+03
5	3.0	R928	486.54	0.64	4.0	300	1.77E-02	5.66E+01	5.66E+02
6	3.0	R928	487.19	0.92	4.0	50	1.64E-02	6.10E+01	6.10E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	5.30	4.5	1000	6.21E-04	1.61E+03	1.61E+04
8	3.0	R636-10	844.60	0.81	4.0	1000	2.06E-04	4.85E+03	4.85E+04

set-2 in 2015(JARE-56)

2015									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.57	0.659	4.00	300	1.63E-02	6.150E+01	6.150E+02
2	3.0	R928	483.44	0.663	4.00	300	1.76E-02	5.681E+01	5.681E+02
3	3.0	R928	484.49	0.576	4.00	300	1.86E-02	5.380E+01	5.380E+02
4	3.0	R928	485.49	0.593	4.02	500	1.66E-02	6.037E+01	6.037E+02
5	3.0	R928	486.49	0.590	4.00	90	1.65E-02	6.044E+01	6.044E+02
6	3.0	R928	487.37	0.589	4.01	300	1.93E-02	5.171E+01	5.171E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	4.343	5.03	500	6.83E-04	1.465E+03	1.465E+04
8	3.0	R636-10	844.60	0.673	4.99	1000	5.52E-04	1.811E+03	1.811E+04

set-1 in 2016(JARE-57)

2016									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.73	0.67	4.0	200	2.09E-02	4.793E+01	4.79E+02
2	3.0	R928	483.72	0.67	4.0	100	1.75E-02	5.720E+01	5.72E+02
3	3.0	R928	484.70	0.59	4.0	500	1.67E-02	5.998E+01	6.00E+02
4	3.0	R928	485.71	0.59	4.0	1000	1.02E-02	9.841E+01	9.84E+02
5	3.0	R928	486.68	0.63	4.0	300	1.62E-02	6.176E+01	6.18E+02
6	3.0	R928	487.54	0.60	4.0	50	7.75E-03	1.290E+02	1.29E+03
6	3.0	R928	487.54	0.60	4.0	100	1.55E-02	6.449E+01	6.45E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	5.30	4.5	1000	5.71E-04	1.752E+03	1.75E+04
8		R636-10	844.60	0.83	4.0	1000	2.17E-04	4.618E+03	4.62E+04

until 2016.4/12 night
from 2016.4/13 night

set-2 in 2017(JARE-58)

2017									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.49	0.67	4.0	300	1.66E-02	6.016E+01	6.02E+02
2	3.0	R928	483.60	0.67	4.0	300	1.53E-02	6.54E+01	6.54E+02
3	3.0	R928	484.64	0.58	4.0	300	1.85E-02	5.41E+01	5.41E+02
4	3.0	R928	485.65	0.59	4.0	500	1.68E-02	5.97E+01	5.97E+02
5	3.0	R928	486.48	0.59	4.0	100	1.65E-02	6.07E+01	6.07E+02
6	3.0	R928	487.55	0.59	4.0	300	1.82E-02	5.51E+01	5.51E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	4.33	5.0	500	6.82E-04	1.47E+03	1.47E+04
8	3.0	R636-10	844.60	0.63	5.0	1000	5.34E-04	1.87E+03	1.87E+04

set-1b in 2018(JARE-59)

2018									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.69	0.67	4.0	200	2.07E-02	48.35	4.84E+02
2	3.0	R928	483.70	0.66	4.0	100	1.68E-02	59.35	5.94E+02
3	3.0	R928	484.66	0.59	4.0	500	1.66E-02	60.06	6.01E+02
4	3.0	R928	485.60	0.59	4.0	1000	1.06E-02	94.48	9.45E+02
5	3.0	R928	486.66	0.64	4.0	300	1.61E-02	61.92	6.19E+02
6	3.0	R928	487.52	0.61	4.0	100	1.68E-02	59.43	5.94E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	5.28	4.5	800	4.76E-04	2099.89	2.10E+04
8	3.0	R636-10	844.60	0.72	4.0	1000	2.20E-04	4549.84	4.55E+04

set-2 in 2019(JARE-60)

2019									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.72	0.67	4.0	300	1.62E-02	6.181E+01	6.18E+02
2	3.0	R928	483.59	0.68	4.0	300	1.47E-02	6.811E+01	6.81E+02
3	3.0	R928	484.63	0.57	4.0	300	1.63E-02	6.141E+01	6.14E+02
4	3.0	R928	485.62	0.59	4.0	500	1.60E-02	6.255E+01	6.25E+02
5	3.0	R928	486.46	0.59	4.0	90	1.51E-02	6.606E+01	6.61E+02
6	3.0	R928	487.52	0.57	4.0	300	1.67E-02	6.001E+01	6.00E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	4.34	5.0	400	5.12E-04	1.953E+03	1.95E+04
8	3.0	R636-10	844.60	0.71	5.0	1000	4.62E-04	2.164E+03	2.16E+04

set-1b in 2020(JARE-61)

2020									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.77	0.66	4.0	200	2.15E-02	46.61	4.66E+02
2	3.0	R928	483.76	0.66	4.0	100	1.74E-02	57.36	5.74E+02
3	3.0	R928	484.75	0.59	4.0	500	1.88E-02	53.17	5.32E+02
4	3.0	R928	485.79	0.60	4.0	1000	1.11E-02	90.02	9.00E+02
5	3.0	R928	486.74	0.65	4.0	300	1.78E-02	56.28	5.63E+02
6	3.0	R928	487.58	0.61	4.0	100	1.78E-02	56.05	5.60E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	5.25	4.5	800	4.71E-04	2124.34	2.12E+04
8	3.0	R636-10	844.60	0.77	4.0	1000	1.65E-04	6069.91	6.07E+04

set-2 in 2021(JARE-62) until the night on March 12, 2021

2021									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.6	0.67	4.0	200	1.11E-02	9.046E+01	9.05E+02
2	3.0	R928	483.42	0.67	4.0	100	5.56E-03	1.798E+02	1.80E+03
3	3.0	R928	484.46	0.58	4.0	500	3.88E-02	2.579E+01	2.58E+02
4	3.0	R928	485.44	0.59	4.0	1000	4.03E-02	2.479E+01	2.48E+02
5	3.0	R928	486.44	0.59	4.0	300	5.78E-02	1.729E+01	1.73E+02
6	3.0	R928	487.37	0.56	4.0	100	4.88E-03	2.051E+02	2.05E+03
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	4.35	5.0	800	1.10E-03	9.060E+02	9.06E+03
8	3.0	R636-10	844.60	0.69	5.0	1000	1.13E-03	8.834E+02	8.83E+03

set-2 in 2021(JARE-62) from the night on March 13, 2021

2021									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.6	0.67	4.0	300	1.66E-02	6.031E+01	6.03E+02
2	3.0	R928	483.42	0.67	4.0	300	1.67E-02	5.995E+01	5.99E+02
3	3.0	R928	484.46	0.58	4.0	200	1.55E-02	6.447E+01	6.45E+02
4	3.0	R928	485.44	0.59	4.0	400	1.61E-02	6.197E+01	6.20E+02
5	3.0	R928	486.44	0.59	4.0	80	1.54E-02	6.483E+01	6.48E+02
6	3.0	R928	487.37	0.56	4.0	300	1.46E-02	6.836E+01	6.84E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	4.35	5.0	500	6.90E-04	1.450E+03	1.45E+04
8	3.0	R636-10	844.60	0.69	5.0	600	6.79E-04	1.472E+03	1.47E+04

set-1b in 2022(JARE-63)

2022									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.54	0.67	4.0	200	2.23E-02	44.79	4.48E+02
2	3.0	R928	483.56	0.68	4.0	100	1.76E-02	56.97	5.70E+02
3	3.0	R928	484.52	0.59	4.0	500	1.75E-02	57.27	5.73E+02
4	3.0	R928	485.59	0.58	4.0	1000	1.15E-02	86.69	8.67E+02
5	3.0	R928	486.52	0.64	4.0	300	1.84E-02	54.34	5.43E+02
6	3.0	R928	487.38	0.61	4.0	100	1.82E-02	54.86	5.49E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	5.37	4.5	800	4.76E-04	2099.56	2.10E+04
8	3.0	R636-10	844.60	0.77	4.0	1000	1.32E-04	7566.21	7.57E+04

set-2 in 2023(JARE-64)

2023									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.74	0.67	4.0	300	1.67E-02	5.987E+01	5.99E+02
2	3.0	R928	483.57	0.67	4.0	300	1.72E-02	5.826E+01	5.83E+02
3	3.0	R928	484.61	0.58	4.0	200	1.64E-02	6.092E+01	6.09E+02
4	3.0	R928	485.58	0.58	4.0	400	1.62E-02	6.172E+01	6.17E+02
5	3.0	R928	486.42	0.59	4.0	80	1.61E-02	6.215E+01	6.21E+02
6	3.0	R928	487.53	0.52	4.0	300	1.44E-02	6.921E+01	6.92E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	4.34	5.0	500	6.92E-04	1.446E+03	1.45E+04
8	3.0	R636-10	844.60	0.70	5.0	600	6.72E-04	1.488E+03	1.49E+04

set-1b in 2024(JARE-65)

2024									
CH	FOV	PMT type	Wave length	FWHM	PMT HV	AMP GAIN	Sensitivity	Sensitivity	Intensity @10 V
	deg		nm	nm	V	times	V/(R/nm)	(R/nm)/V	R/nm
1	3.0	R928	482.69	0.67	4.0	200	2.35E-02	42.57	4.26E+02
2	3.0	R928	483.68	0.67	4.0	100	1.72E-02	58.15	5.82E+02
3	3.0	R928	484.65	0.59	4.0	500	1.90E-02	52.54	5.25E+02
4	3.0	R928	485.51	0.58	4.0	1000	1.16E-02	86.28	8.63E+02
5	3.0	R928	486.66	0.64	4.0	300	1.83E-02	54.77	5.48E+02
6	3.0	R928	487.49	0.61	4.0	100	1.64E-02	61.02	6.10E+02
	deg		nm	nm	V	times	V/R	R/V	R
7	3.0	R636-10	670.50	5.35	4.5	900	5.17E-04	1932.87	1.93E+04
8	3.0	R636-10	844.60	0.92	4.0	1000	1.39E-04	7175.49	7.18E+04