

M2O Newsletter, No. 16

The main news items this month:

1. New M2O activity at observatories:

- **Warkworth 32m telescope** Introduction of members and current status.
- **Irbene single 800m* baseline interferometer** almost fully operational, grant funding requested.
- **Kuntunse radio telescope in Ghana** are seeking a source list for monitoring.
- **Parkes Maser Monitoring Programme P1073** granted with 41 hours of observing from October 2020 through March 2021.
- **Medicina** has restarted observations early September after a long lockdown (due to covid-19 and necessary repairs).

1 Activity since the previous Newsletter

- **SamePage:** total 69 members.
Passing of Georgij Rudnitskij
- **Papers accepted:** +0; Total: 15
- **Papers under review:** +0
- **Updates on papers in prep:**
 - Bayandina et al., VLA masers in G358. Images circulated during the prev. telecom.
 - [Burns et al., 6.7 GHz VLBI movie in G358. Drafting and further analyses](#)
 - Burns et al., VLBI maps of rare maser lines in G358. Images circulated during the prev. telecom.
 - Orosz et al., 7.6 and 7.8 GHz methanol masers in G358, aiming for ApJL submission in August.
 - [Hirota et al., ALMA follow-up observations of G24.33+0.14 in pre- and post- maser flare phases.](#)
 - Olech et al., VLBI images of G24.33 during its maser flare.
 - [Stecklum et al., SOFIA, radiative transfer analyses of the G358 accretion burst. Draft on SP](#)
 - Gray et al., Two additions to the maser flare series: compression and overlap.

• M2O targets:

Name	Maser [GHz]	Pre-burst Flux [Jy]	Max Flux [Jy]	Current Flux [Jy]	Reported by	Reobserved by	Status
G359.617-0.251	6.7	120	200	150	Yonekura	Ib, Hh,	decreasing
Orion S6	6.7	3.1	9	4	Yonekura	Ib, Tr, Sz, Hh	stable
G85.411+0.002	6.7	12	95	110	Yonekura	Ib, Ef, Sz, Tr, Hh, Ky, Vs	rising
G33.641-0.228	6.7	-	236	236	Bringfried	Hh, Ib, Vs	eruptive
IRAS 16293-2422	22	-	30k	-	Sunada, Mc	Vr, Mc, Hh, Sz, Ib	-
NGC2071	22	1k	7k	920	Sunada, Hh	Vr, Hh, Sz, Ib	post-burst
G53.22-0.08	22	3	800	30	Sunada	Vr, Hh, Ib	post-burst
G358.93-0.03	6.7	5	1000	20	Yonekura	Hh, Ib	decreasing
G24.33+0.14	6.7	-	800	8	Torun	Hh, Ib, Vs	decreasing
G25.65+1.05	22	-	60k	2150	Sz	Hh, Sz	post-burst

(Ib = Ibaraki) (Tr = Torun) (Sz = Simeiz) (Hh = HartRAO) (Ef = Effelsberg) (Ky = KVN Yonsei) (Vs = Ventspil) (Vr = VERA stations) (Mc = Medicina)

- **Follow-up observations conducted this month (see Record Keeping for details):**
VLBA trigger (BB418A) of the (methanol) 6.7, 12.2 and (water) 22 GHz masers in G359. [First images of the 6.7 GHz maser are on SamePage. In discussion we decided not to pursue with further observations of G359](#)
- **New observing proposals:** None
- **Active trigger proposals:**

Array	Code	Grade	Hours granted target x epoch x hour	Hours remaining	Active period	Resubmit deadline
EVN	EB083	1.2 / 5.0 (0 is best)	(3x2x8)x2 bands = 96	96	15/SEP/20 - 15/SEP/21	01/JUN/20
KaVA	EAVN20B-183	7.2 / 10.0 (10 is best)	2 x 3 x 8 = 48	48	01/Sep/20 - 01/Feb/21	15/JUN/20
LBA	V581	4.0 / 5.0 (5 is best)	96	88	01/OCT/19 - 01/OCT/20	16/JUN/20
VLBA	BB418	1.82 / 10.0 (0 is best)	48	48	01/AUG/20 - 01/AUG/21	01/FEB/21
Subaru	S20B0051N	accepted	0.5*2 or 1 night	0.5*2 or 1 night	01/AUG/20 - 01/JAN/21	-

Next Newsletter / Telecom: 30th Oct 2020, 18:00 JST

Record keeping

2 M2O Publications

No.	Target	Facility	Author	Frequency (GHz)	Status	Ref	Journal
1	W49N	Sm, Tr	Volvach+	22.2	Published	(1)	MNRAS_L
2	W49N	Sm, Tr, Mc, Ef	Volvach+	22.2	Published	(2)	A&A
3	W49N	Sm, Tr, Mc, Ef, Kvazar	Volvach+	22.2	Published	(3)	Ast.Rep.
4	W49N	Sm	Volvach+	22.2	published	(4)	MNRAS
5	G25	VLA	Bayandina+	6.7, 12.2, 22	Published	(5)	ApJ
6	G25	Sim/Hh/Tr	Volvach+	22	Published	(6)	MNRAS_L
7	G25	KVASAR	Volvach+	22	Published	(7)	Ast.Rep.
8	G25	EVN	Burns+	22	Published	(8)	MNRAS
9	G25		Aberfelds+	6.7	in prep		-
10	G25		Bayandina+	12.2, 23.1	in prep		-
11	G25		MacCleod+	6.7, 22	in prep		-
12	G358	ATCA	Breen+	mm	Published	(9)	ApJ
13	G358	ALMA-SMA	Brogan+	mm	Published	(10)	ApJL
14	G358	Hh	MacCleod+	New Methanol masers	Published	(11)	MNRAS
15	G358	LBA	Burns+	6.7	Published	(12)	Nat.Ast.
16	G358	Various VLBI	Burns+	6.7 movie	in prep		-
17	G358	Various VLBI	Burns+	Maps of rare masers	in prep		-
18	G358	VLBA	Burns+	6.7 and 12.18	in prep		-
19	G358	Asia-Pacific VLBI	Orosz+	7.6, 7.8	in prep.		ApJL
20	G358	VLA	Chen+	multiple lines methanol	Published	(13)	ApJL
21	G358	VLA	Chen+	New lines + Methanol	published	(14)	Nat. Ast.
22	G358		MacCleod+	6.7 GHz monitoring	in prep		-
23	G358		MacCleod+	6.2, 12.2, 20.3, 20.9	in prep		-
24	G358	VLA	Bayandina+	6.7, 12.2, 22.2	in prep		-
25	G358	SOFIA	Stecklum+	FIR	in prep		A&A_L
26	G358	Sm and Hh	Volvach+	19.9, 20.9	Published	(15)	MNRASL
27	G358	ATCA	Breen+	Rare transitions	in prep		-
28	G24.33	EVN, VLBA	Olech+	6.7, 12.2, 22.2	in prep		-
29	G24.33	Tr	Olech+	OH, Meth	in prep		-
30	G24.33	Hh	v. d. Heever+		in prep		-
31	G24.33	ALMA	Hirota+	Thermal and maser	in prep		-

References

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M2O follow-up data

No.	Target	Facility	Date	Frequency (GHz)	Code	PI/comment
1	G25	VLA	Oct 2017	6.7, 12.2, 22	17B-408	OB / Reduced
2	G25+W49N	EVN	Oct 2017	22	RB004	RB / Reduced
3	G25+W49N	KaVA	Oct 2017	22	K17RB01A	RB / Reduced
4	G25+W49N	VLBA	Oct 2017	22	BO058	GO / Reduced
5	G25	VERA	2007-2013	22, 16 x epochs	[archival]	K. Motogi / Processing
6	G358	VERA	31 Jan 2019	6.7	-	SY / Reduced
7	G358	VERA	3 Mar 2019	6.7	-	SY / Reduced
8	G358	VERA	1 Apr 2019	6.7	-	SY / Reduced
9	G358	VERA	3 May 2019	6.7	-	SY / Reduced
10	G358	LBA	2 Feb 2019	6.7	vc026a	RB / Reduced
11	G358	LBA	3 Feb 2019	23.1	vc026b	GO / Abandoned
12	G358	LBA	28 Feb 2019	6.7	vc026c	RB / Reduced
13	G358	EVN	13 Mar 2019	6.7, 6.18	RB005	RB / Reduced
14	G358	KVN	25 Mar 2019	22, 44, 95, 120	n19rb01a	RB / Reduced
15	G358	VLBA	19 May 2019	6.7, 12.2, 23.1	BB414	RB / QuickLook
16	G358	VLBA	7 Jun 2019	6.7, 12.2, 20.7	BB412	RB / Reduced
17	G358	LBA+E.Asia	17 May 2019	7.6, 7.8	vx028a	GO,SE / QuickLook
18	G358	LBA+AusSCOPE	28 Sep 2019	6.7	v581a	RB / Reduced
19	G358	SOFIA	30 April 2019	50...120 μ m	-	BS,JE
20	G358	GROND	8 Feb 2019	NIR	-	HL,BS,AC
21	G358	SMA	several 2019	mm	-	THunter,CB
22	G358	ALMA	several 2019	Bands 5,6,7	-	CB
23	G358	VLA	2019	GHz	-	OB
24	G358	VLA	2019	GHz	-	OB
25	G358	VLA	2019	HNCO	-	XC,AS
26	G24	LBA	8 Sep 2019	6.7	vx026d	RB,MO / Correlated
27	G24	LBA	13 Sep 2019	6.7	s002a	RB,MO / Correlated
28	G24	LBA	28 Sep 2019	6.7	v581a	RB,MO / Correlated
29	G24	EVN	22 Sep 2019	22	RB006A	RB,MO / QuickLook
30	G24	EVN+Merlin	7 Oct 2019	6.7	RB006B	RB,MO / QuickLook
31	G24	EVN+Merlin	17 Nov 2019	1.667	RB007	RB,MO / correlated
32	G24	VLBA	27 Sep 2019	6.7, 12.2, 22	BB416A	RB,MO / QuickLook
33	G24	VLBA	27 Oct 2019	6.7, 12.2, 22	BB416B	RB,MO / correlated
34	G24	VLBA	02 Dec 2019	6.7, 12.2, 22	BB416C	RB,MO / correlated
35	G24	ALMA	26 Sep 2019	Band6	-	THirota / QuickLook
36	G24	SOFIA	25 Oct 2019	FIR	-	BS,JE
37	G24	ATCA	26 Nov 2019	K-band	C3321	GO,SB
38	G24	ATCA	27 Nov 2019	C-band	C3321	GO,SB
39	NGC2071, Ori-S6	KaVA	13 Mar 2020	22/44/95/130	a20d3a	RB / QuickLook
40	NGC2071, Ori-S6	KaVA	16 Apr 2020	22/44/95/130	a20d3b	RB / QuickLook
41	NGC2071, Ori-S6	KaVA	11 May 2020	22/44/95/130	a20d3c	RB / Correlated
42	G85	VLBA	24/Apr/2020	L/C/Ku/K	BB421B	RB / QuickLook
43	G85	VLBA	22/May/2020	L/C/Ku/K	BB421A	RB / QuickLook
44	G85	VLBA	22/June/2020	L/C/Ku/K	BB421C	RB / correlated
45	G359.617-0.251	LBA	18?Aug/2020	6.7	V581A	RB / Observed
46	G359.617-0.251	VLBA	21/Aug/2020	6.7 / 12.2 / 22	BB418A	RB / Correlated
47	G359.617-0.251	ATCA	25-26/July/2020	6-10 GHz	C3321	GO / Processing

Reminder:

All **G358** papers should include a member from the Ibaraki team in the author list and an acknowledgement of their funding.

All **G24.33** papers should include a member from the Torun team in the author list and an acknowledgement of their funding.

All **Orion-S6** papers should include a member from the Ibaraki team in the author list and an acknowledgement of their funding.

All **NGC2071** papers should include a member from the VERA / Sunada team in the author list and an acknowledgement of their funding.

All **G85** papers should include a member from the Ibaraki team in the author list and an acknowledgement of their funding.

All **G359** papers should include a member from the Ibaraki team in the author list and an acknowledgement of their funding.