

M2O Newsletter, No. 17

The main news items this month:

There has been very little in terms of discussable activity since the last telecom, aside from progress with paper drafting and the new flare in G034.196-0.592. Coverage of both have been logged on SamePage. Regarding G034.196-0.592, in short, there is a water maser flare in progress. The maser is new and therefore lacks precise coordinates. We are trying to establish the best approach to getting a position for the maser to determine what continuum source it associates with and to proceed with follow-up observations. Please head to SamePage if you can help.

Also, I have been drafting up a new pair of KaVA and EAVN proposals for triggered observations. The EAVN is now offering C-band. I decided to split the proposals into one KaVA proposal concentrating on the K/Q/W/D lines (single epoch per flare) and one EAVN proposal for C-band aimed at monitoring the distribution of the 6.7 GHz methanol maser (as many epochs as we can get).

Both of these approaches have served us well in the past. The deadline is the 2nd of November at 17:00 JST. I will upload the drafts to SamePage and welcome comments up to an hour or so before the deadline.

1 Activity since the previous Newsletter

- **SamePage:** total 69 members.
- **Papers accepted:** +0; Total: 15
- **Papers in revision:** +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 telecom 15
 - 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. Submitted](#)
 - 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
G034.196-0.592	22	-	120	120	Ladeyschikov	Sz, Oa, Hh	rising

(Ib = Ibaraki) (Tr = Torun) (Sz = Simeiz) (Hh = HartRAO) (Ef = Effelsberg) (Ky = KVN Yonsei) (Vs = Ventspil) (Vr = VERA stations) (Mc = Medicina) (Ps = Puschino) (Oa = OAO-WFC)

- **Follow-up observations conducted this month (see Record Keeping for details):**
None
- **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	-

2 Reports

Short reports on specific activities, please send me an email (ross.burns@nao.ac.jp) in advance if you have something to report in an upcoming telecom.

Record keeping

3 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		-

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- [13] Chen, X. *et al.* ¹³CH₃OH Masers Associated With a Transient Phenomenon in a High-mass Young Stellar Object. *ApJL* **890**, L22 (2020).
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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.