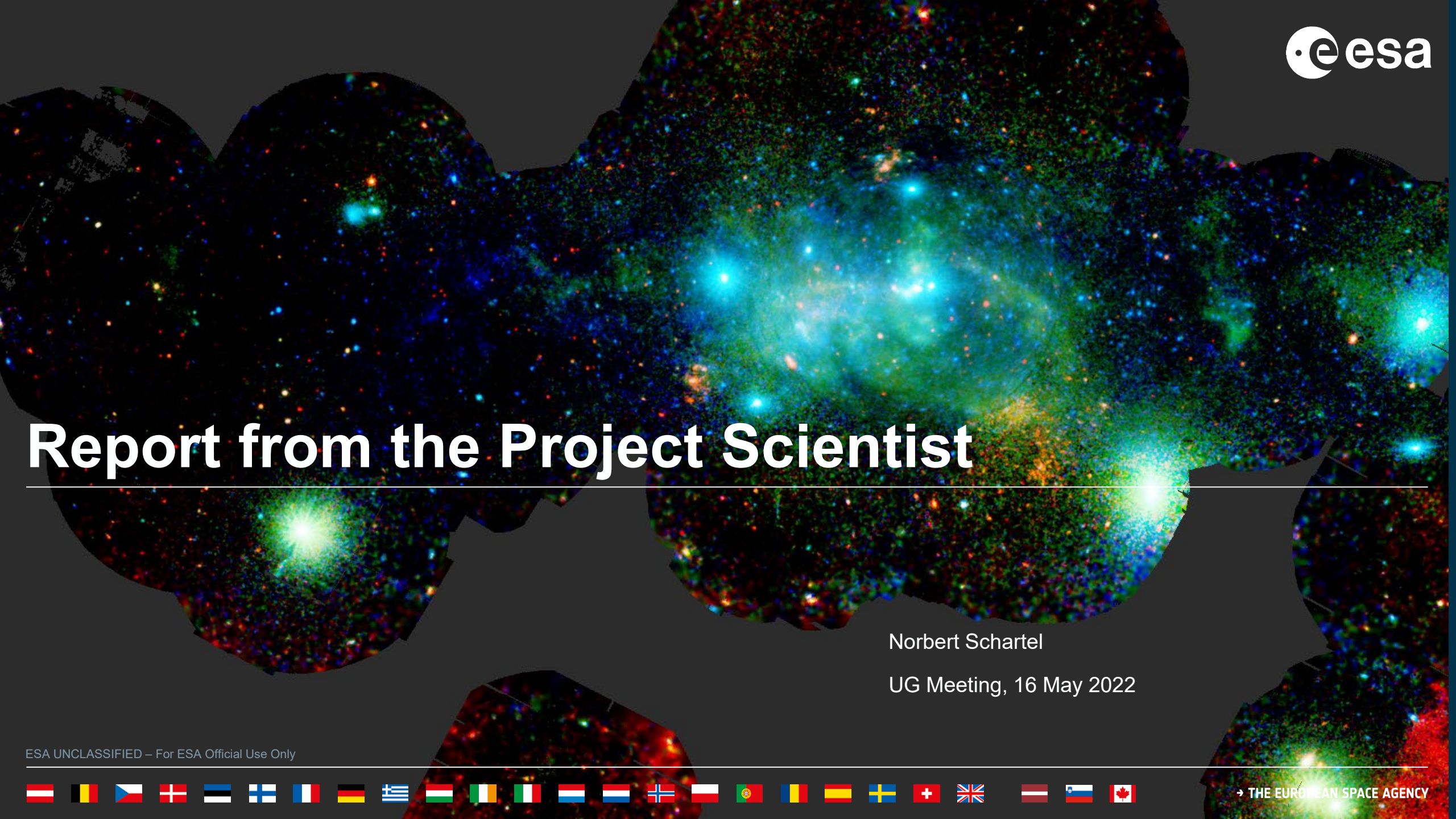


Report from the Project Scientist

Norbert Schartel

UG Meeting, 16 May 2022

Content

- Announcement of Opportunity (AO)
  - AO 21
  - AO 22 / Preparation
- Target of Opportunity (TOOs)
- Publications
- Evolution of Observing Program
- Public Relations
- Workshops & Conferences
- Mission Extension & Users Model
- MYHP?

AO 21 I

Submission Statistics for AO21

Nr. of proposals received:	428
Nr. of PI's	348
Nr. of Co-I's per proposal	5
Nr. of PI's+Co-I's (email)	1598
Nr. of PI's+Co-I's (surname)	1347
Nr. of countries participating	40
Nr. of Observations	1768
Nr. of Pointings	2239
Nr. of targets	1407
Nr. of Obs. per Proposal	4.1
Nr. of Pointings per Proposal	5.2
Total Req. Time (ks)	80997
Average Req. Time per proposal (ks)	189.2
Average Req. Time per pointing (ks)	38.0
Average Req. Time per observation (ks)	45.8

AO 21 II

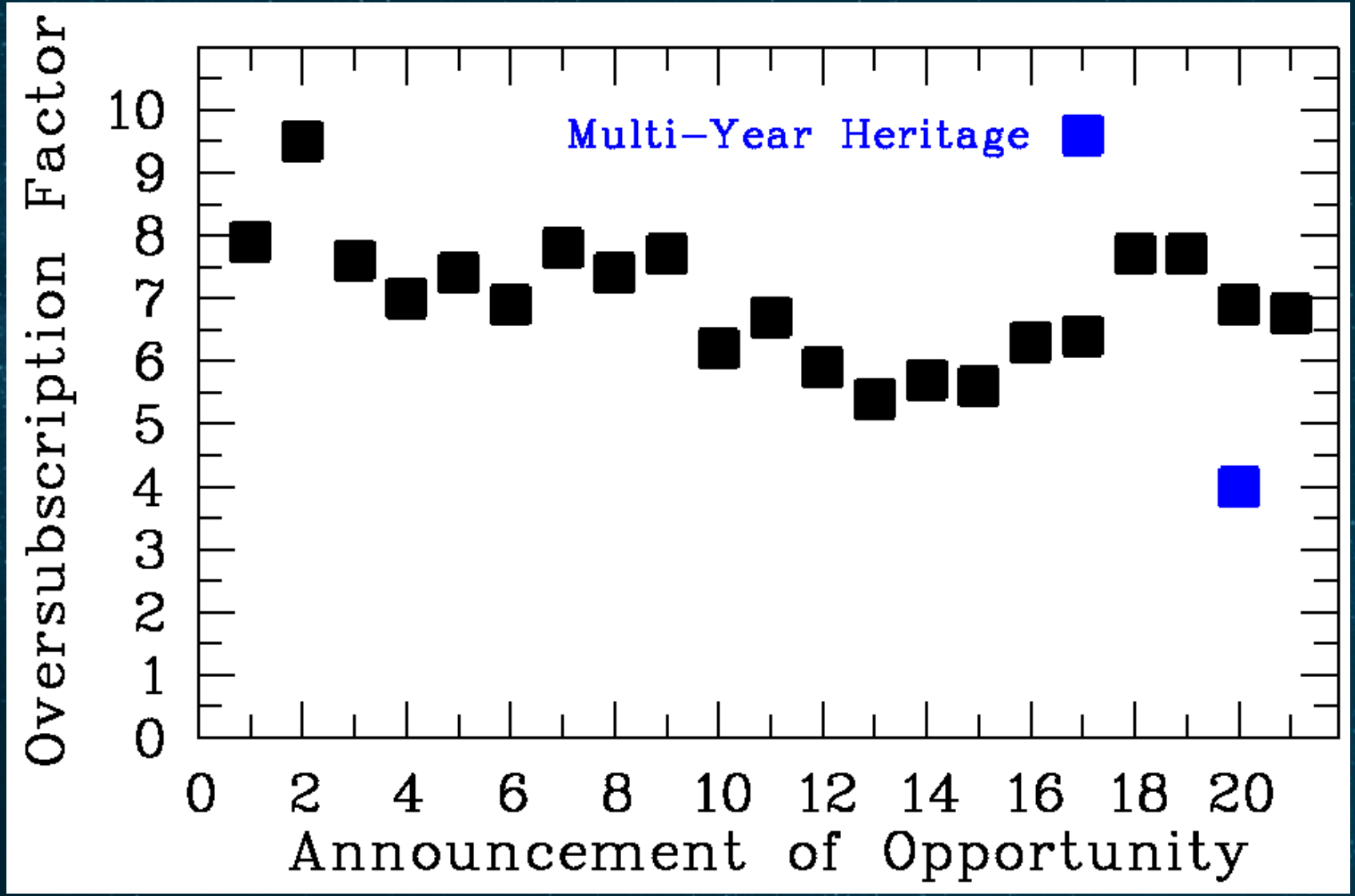
Country	Nr. of proposals	Req. Time (ks)
UNITED STATES	189	34061
ITALY	53	11311
GERMANY	57	8622
UNITED KINGDOM	24	6045
FRANCE	19	5783
ESA	11	2611
NETHERLANDS	11	1557
CHINA	13	1458
FINLAND	4	1269
INDIA	9	1043
CANADA	8	949
SPAIN	7	927
ISRAEL	4	755
JAPAN	7	679
GREECE	1	492
BRAZIL	4	454
POLAND	2	432
CHILE	2	394
KOREA	3	362
SWITZERLAND	1	286
BELGIUM	3	264
AUSTRALIA	2	260
TAIWAN	3	186
IRELAND	2	171
SWEDEN	1	112
RUSSIA	2	109
BULGARIA	1	103
MEXICO	1	88
CZECH REPUBLIC	1	78
NORWAY	1	73
SLOVAKIA Slovak Rep.	1	64

AO 21 III

Statistics by Proposal Type

Proposal Type	Nr. of proposals (Large Program)	Total Time (ks) (Large Program)
Guest Observer	340 (40)	65228 (29407)
Target of Opportunity (anticipated)	68 (4)	10303 (2277)
Fulfil	20 (0)	5466 (0)

AO 20 IV


Oversubscription Factor
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1
2
3
4
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6
7
8
9
10
Multi-Year Heritage
0
2
4
6
8
10
12
14
16
18
20
Announcement of Opportunity

AO 21 VI

Categories Distribution

Category	Nr. of Proposals (Large Programs)	Nr. of Observations (Large Programs)	Total Time Req. (ks) (Large Programs)
A	62 (5)	197 (18)	8553 (2322)
B	134 (6)	359 (26)	16749 (3166)
E	147 (19)	618 (163)	30724 (11710)
F	80 (12)	542 (265)	20355 (10688)
G	5 (2)	52 (22)	4616 (3798)
	428 (44)	1768 (494)	80997 (31684)

Category	Topic	Category	Topic
A	Stars	E	AGN
B	Compact Objects	F	Galaxies and Clusters
		G	Cosmology

AO 21 V

Statistics on Joint observations (204 observations in 90 proposals)

	Nr. of Prop.	Nr. of obs	Time/Orbits
Chandra	10	16	684.0
HST	21	38	102.0
VLT	9	31	49.0
Swift	12	31	657.0
NuSTAR	49	106	7339.0
INTEGRAL	1	2	200.0
MAGIC	0	0	None
HESS	2	3	41.0
NRAO	8	13	81.0

Scientific Categories

A) Life-cycle of stars and planets

B) Isolated and binary compact objects & their evolution

E) Active Galactic Nuclei, Quasars, BL-Lac Objects and Tidal Disruption Events

F) Galaxies, Groups of Galaxies, Clusters of Galaxies and Superclusters

G) Cosmology, Extragalactic Deep Fields and Large Extragalactic Areas

AO 21 VII / Large Programmes

090017	21	Li	X-raying accretion atmosphere of the most massive spiral in the local universe	4	460	LP	0	Galaxies
090041	21	Schartel & Santos-Lleo	Monitoring the Building of the Corona in ESO 253-G003	26	600	LP	0	AGN / Black Hole
090199	21	Wibisono	Characterising X-rays from Uranus	3	370	LP	0	Solar System
090267	21	Ogorzalek	Unveiling bulk motions in hot gaseous halo of a giant elliptical galaxy	5	540	LP	0	Galaxies
090278	21	Reynolds	Fast Iron Ejecta in a Very Young Core-Collapse Supernova Remnant: G350.1--0.3	4	510	LP	0	SNR
090357	21	Campana & Margutti	XMM-Newton follow-up of electromagnetic counterparts to GW triggers during LVKC-	8	590	LP	0	Neutron Stars
090389	21	Eckert, Gastaldello & O'Sullivan	Galaxy groups as the ultimate probe of AGN feedback	36	860	LP	0	Clusters of Galaxies
090399	21	Krumpe	XMM follow-ups of rare AGN ignition and shut-down events detected with eROSITA	16	520	LP	0	AGN / Black Hole
090447	21	Bulbul	eROSITA & XMM-Newton Legacy High Redshift Cluster Survey	17	1000	LP	0	Clusters of Galaxies (C-Priority)

AO 22 Preparation

- Planned key milestones (public since 1 February, 2022, XMM-Newton Newsletter #252 & SOC webpages):
  - Announcement: 17 August 2022
  - Due date for proposals: 7 October 2022
  - Final approved program: mid December 2022
  - Second phase submission 10 – 27 January 2023
  - Start of observations: 1 May 2023

- 5 Scientific categories / 11 Panel / 56 Scientists
- OTAC chairperson: Prof. Phil Charles, Southampton/Oxford, United Kingdom
- OTAC panel Chairpersons are asked not to participate on new Large Programs

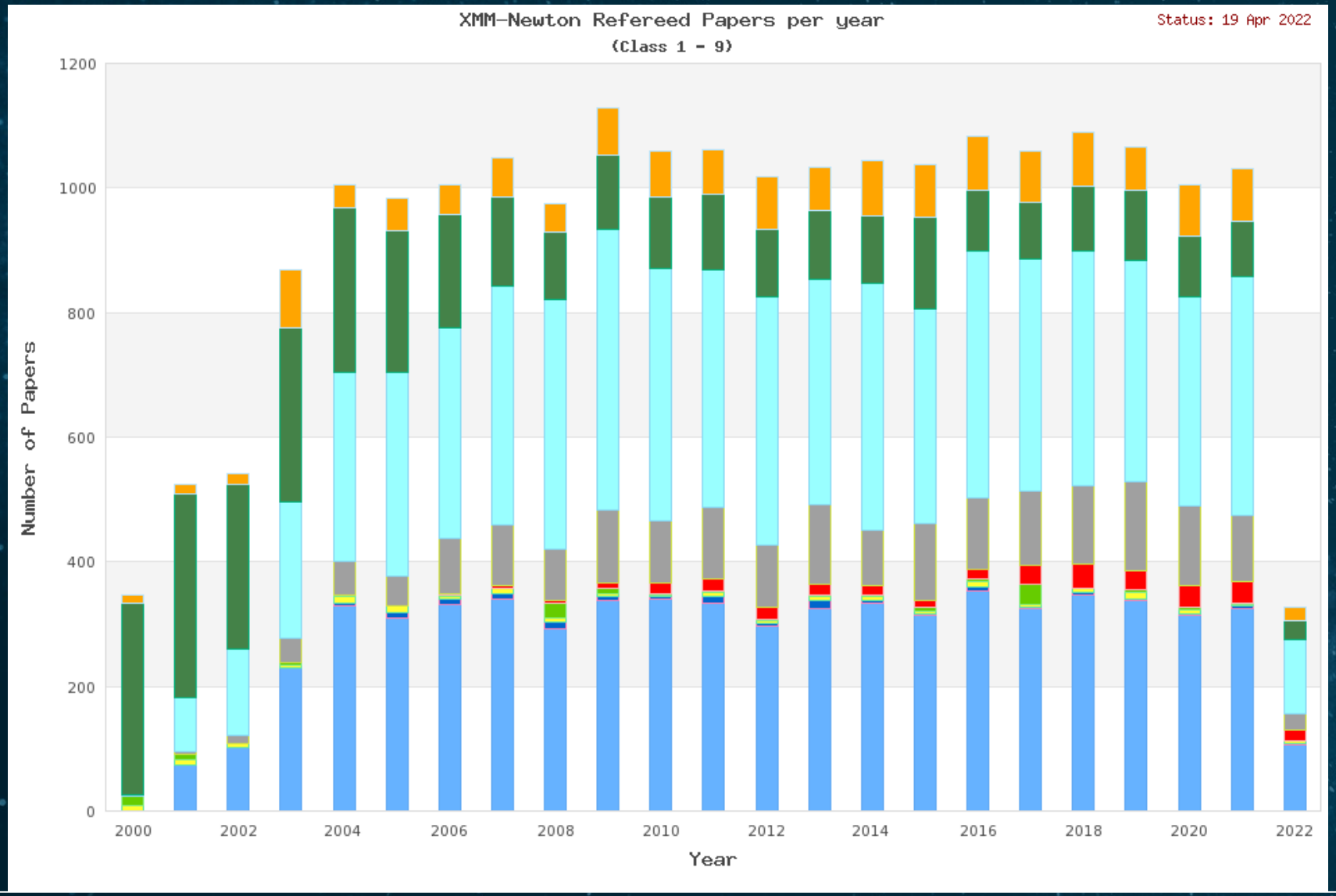
Targets of Opportunity and Director's Discretionary Time I

Rev	Observation Id	Target	RA	Dec	Exp. Time (ksec)	Data Status	ODF Data when available	PPS Data when available	Proposer/ Comments
4023	0891803001	C/2021 A1	12:54:54.00	+31:45:08.0	44.5	ToO (09-Jun-2022)	ODF Data	PPS Data	(Dr. K. Dennerl)
4019	0891801301	AD Leo	10:19:36.00	+19:52:11.5	86.0	ToO (25-May-2022)	ODF Data	PPS Data	(Dr. B. Stelzer)
4018	0891802101	2MASX J01110461-4558	01:11:04.76	-45:58:04.3	18.0	ToO (23-May-2022)	ODF Data	PPS Data	(Dr. D. Lin)
4010	0891802601	ESO 490-G026	06:40:11.69	-25:53:43.0	12.6	ToO (Public)	ODF Data	PPS Data	(Dr. M. Krumpe)
4002	0891802001	V4641 Sgr	18:19:21.60	-25:24:25.8	5.0	ToO (21-Apr-2022)	ODF Data	PPS Data	(Dr. S. Motta)
3991	0891801701	WISEA J045649.8-2037	04:56:49.80	-20:37:47.9	127.5	ToO (Public)	ODF Data	PPS Data	(Dr. Z. Liu)
3983	0891801601	EC 04570-5206	04:58:15.63	-52:02:02.6	33.0	ToO (Public)	ODF Data	PPS Data	(Dr. M. Krumpe)
3979	0891801401	TC0221	15:48:43.10	+22:08:13.0	33.1	ToO (Public)	ODF Data	PPS Data	(Dr. J. Somalwar)
3979	0891801201	PSR J1740-5340B	17:40:45.00	-53:40:41.0	30.2	ToO (Public)	ODF Data	PPS Data	(Dr. M. McLaughlin)
3977	0891801501	NGC 5907 ULX1	15:15:58.59	+56:18:10.0	67.2	ToO (Public)	ODF Data	PPS Data	(Dr. D. Walton)
3974	0891801101	WISEA J045649.8-2037	04:56:49.80	-20:37:47.9	51.1	ToO (Public)	ODF Data	PPS Data	(Dr. Z. Liu)
3967	0891800801	V767 Cen	13:53:57.20	-47:07:41.4	5.0	ToO (Public)	ODF Data	PPS Data	(Dr. Y. Naze)
3967	0891800601	XMMSL1 J024916.6-041244	02:49:17.30	-04:12:52.0	30.0	DPS (Public)	ODF Data	PPS Data	(Dr. E. Kara)
3960	0891800701	4FGL J1408.6-2917	14:08:26.80	-29:22:21.2	24.4	ToO (Public)	ODF Data	PPS Data	(Dr. S. Swihart)
3960	0891800301	RX J1605.3+3249	16 05:18.90	+32:49:07.0	30.3	ToO (Public)	ODF Data	PPS Data	(Dr. F. Haberl)
3959	0891800101	ASASSN-20qc	04:13:02.45	-53:04:21.7	26.1	ToO (Public)	ODF Data	PPS Data	(Dr. D.Pasham)
3958	0854180401	4FGL J0304.5-0054	03:04:34.15	-00:54:53.2	23.9	ToO (Public)	ODF Data	PPS Data	(Dr. R. Prince)
3956	0891800401	NGC 1052	02:41:04.80	-08:15:20.8	28.3	ToO (Public)	ODF Data	PPS Data	(Dr. V. Ramakrishnan)
3952	0891800501	BL Lac	22:02:43.29	+42:16:39.9	19.6	ToO (Public)	ODF Data	PPS Data	(Dr. R. Khatoon)
3946	0872393301	ton 599	11:59:31.83	+29:14:43.8	14.5	ToO (Public)	ODF Data	PPS Data	(Dr. R. Prince)
3946	0872393201	LEDA 738823	02:43:45.70	-28:40:40.0	32.9	ToO (Public)	ODF Data	PPS Data	(Dr. J. Somalwar)
3938	0872393101	4FGL J2108.0+5155	21:08:04.00	+51:55:39.0	16.9	ToO (Public)	ODF Data	PPS Data	(Dr. R. Walter)
3925	0872392901	AT20200cn	13:53:53.77	+53:59:49.6	67.1	ToO (Public)	ODF Data	PPS Data	(Dr. D. Pasham)
3925	0872392601	FRB 20200120E	09:57:56.00	+68:49:32.0	30.0	ToO (Public)	ODF Data	PPS Data	(Dr. P. Scholz)

Targets of Opportunity and Director's Discretionary Time II

Rev	Observation Id	Target	RA	Dec	Exp. Time (ksec)	Data Status	ODF Data when available	PPS Data when available	Proposer/ Comments
TBD.	0911790301	em01_044099_020_ML00016_002_c946	02:55:08.24	-08:18:46.1	18.0	DPS (TBD)	ODF Data	PPS Data	(Dr. T. Boller)
TBD.	0911790201	em01_209084_020_ML00124_002_c946	13:51:21.60	+04:45:41.0	23.0	DPS (TBD)	ODF Data	PPS Data	(Dr. T. Boller)
TBD.	0911790101	em01_140084_020_ML00023_001_c946	09:15:36.77	+06:25:40.6	23.0	DPS (TBD)	ODF Data	PPS Data	(Dr. T. Boller)
4096	0911990201	Mrk 817	14:36:22.10	+58:47:39.4	128.8	ToO (TBD)	ODF Data	PPS Data	(Dr. J. Miller)
4090	0893811001	ASASSN-20qc	04:13:02.38	-53:04:21.8	45.0	ToO (18-Oct-2022)	ODF Data	PPS Data	(Dr. D. Pasham)
4089	0911790401	em01_135051_020_ML00007_003_c946	09:04:23.31	+40:07:04.7	18.0	DPS (11-Oct-2022)	ODF Data	PPS Data	(Dr. T. Boller)
4083	0893811301	Sgr a*	17:45:40.00	-29:00:28.0	56.5	DPS (01-Oct-2022)	ODF Data	PPS Data	(Dr. J. Neilsen)
4079	0893811101	Sgr a*	17:45:40.00	-29:00:28.0	54.2	DPS (24-Sep-2022)	ODF Data	PPS Data	(Dr. J. Neilsen)
4059	0893810501	2MASX J02344872-4419	02:34:48.72	-44:19:32.5	25.0	ToO (15-Aug-2022)	ODF Data	PPS Data	(Dr. R. Arcodia)
4058	0893810901	PKS1413+135	14:15:58.80	+13:20:23.0	13.5	ToO (10-Aug-2022)	ODF Data	PPS Data	(Dr. E. Lindfors)
4058	0893810701	ASASSN-20qc	04:13:02.40	-53:04:21.8	29.2	ToO (10-Aug-2022)	ODF Data	PPS Data	(Dr. D. Pasham)
4057	0893810801	Mkn 501	16:53:52.22	+39:45:36.6	22.5	ToO (10-Aug-2022)	ODF Data	PPS Data	(Dr. E. Pian)
4056	0893810601	GRB211211A	14:09:10.12	+27:53:18.1	67.0	ToO (TBD)	ODF Data	PPS Data	(Dr. P. D'Avanzo)
4050	0893810401	SDSSJ1430+2303	14:30:16.04	+23:03:44.2	78.7	ToO (24-Jul-2022)	ODF Data	PPS Data	(Dr. N. Jiang)
4043	0893810301	NGC5907 ULX1	15:15:58.60	+56:18:10.0	51.9	ToO (11-Jul-2022)	ODF Data	PPS Data	(Dr. D. Walton)
4040	0893810201	SDSSJ1430+2303	14:30:16.04	+23:03:44.2	56.6	ToO (5-Jul-2022)	ODF Data	PPS Data	(Dr. N. Jiang)
4036	0891802501	CN Leo	10:56:23.21	+06:59:54.0	31.0	ToO (29-Jun-2022)	ODF Data	PPS Data	(Dr. R. Paudel)
4035	0893810101	GRB211211A	14:09:10.12	+27:53:18.1	39.9	ToO (29-Jun-2022)	ODF Data	PPS Data	(Dr. P. D'Avanzo)
4035	0891804201	RBS 1124	12:31:36.56	+70:44:13.3	33.2	ToO (29-Jun-2022)	ODF Data	PPS Data	(Dr. D. Walton)
4035	0891802401	CN Leo	10:56:23.21	+06:59:54.0	29.8	ToO (29-Jun-2022)	ODF Data	PPS Data	(Dr. R. Paudel)
4034	0891802301	CN Leo	10:56:23.21	+06:59:54.0	36.4	ToO (29-Jun-2022)	ODF Data	PPS Data	(Dr. R. Paudel)
4034	0891801901	CN Leo	10:56:23.21	+06:59:54.0	37.0	ToO (29-Jun-2022)	ODF Data	PPS Data	(Dr. R. Paudel)
4032	0891804001	RBS 1124	12:31:36.56	+70:44:13.3	31.4	ToO (21-Jun-2022)	ODF Data	PPS Data	(Dr. D. Walton)
4029	0891803801	ASASSN-20qc	04:13:02.45	-53:04:21.7	40.6	ToO (14-Jun-2022)	ODF Data	PPS Data	(Dr. D. Pasham)
4027	0891803701	ASASSN-20qc	04:13:02.45	-53:04:21.7	31.3	ToO (12-Jun-2022)	ODF Data	PPS Data	(Dr. D. Pasham)

Publications



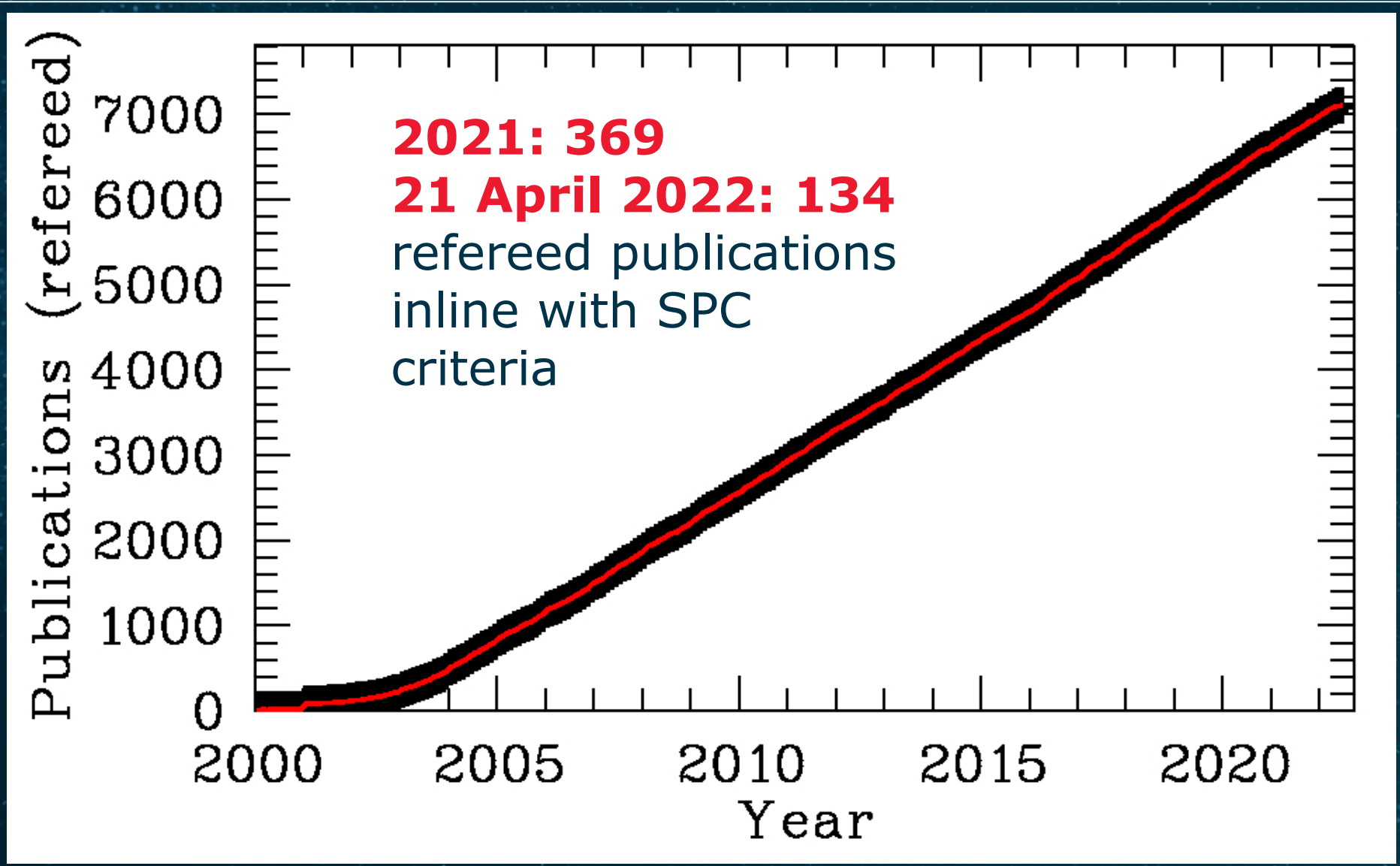
XMM in Name
Mentions XMM
XMM & Citation

Uses Others

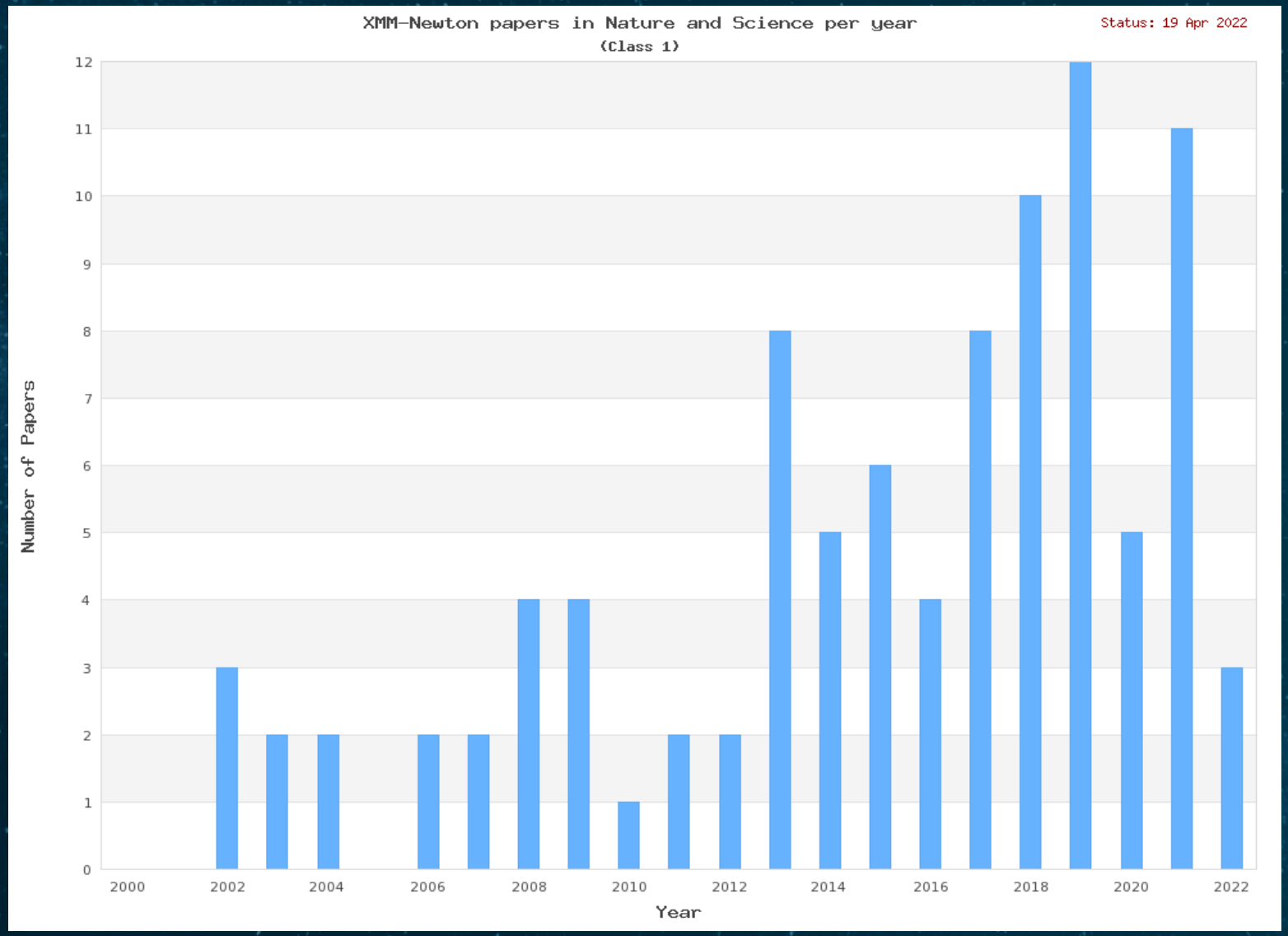
--- SPC ---

Uses Products
Describes
Predicts
Catalogue
Uses Data

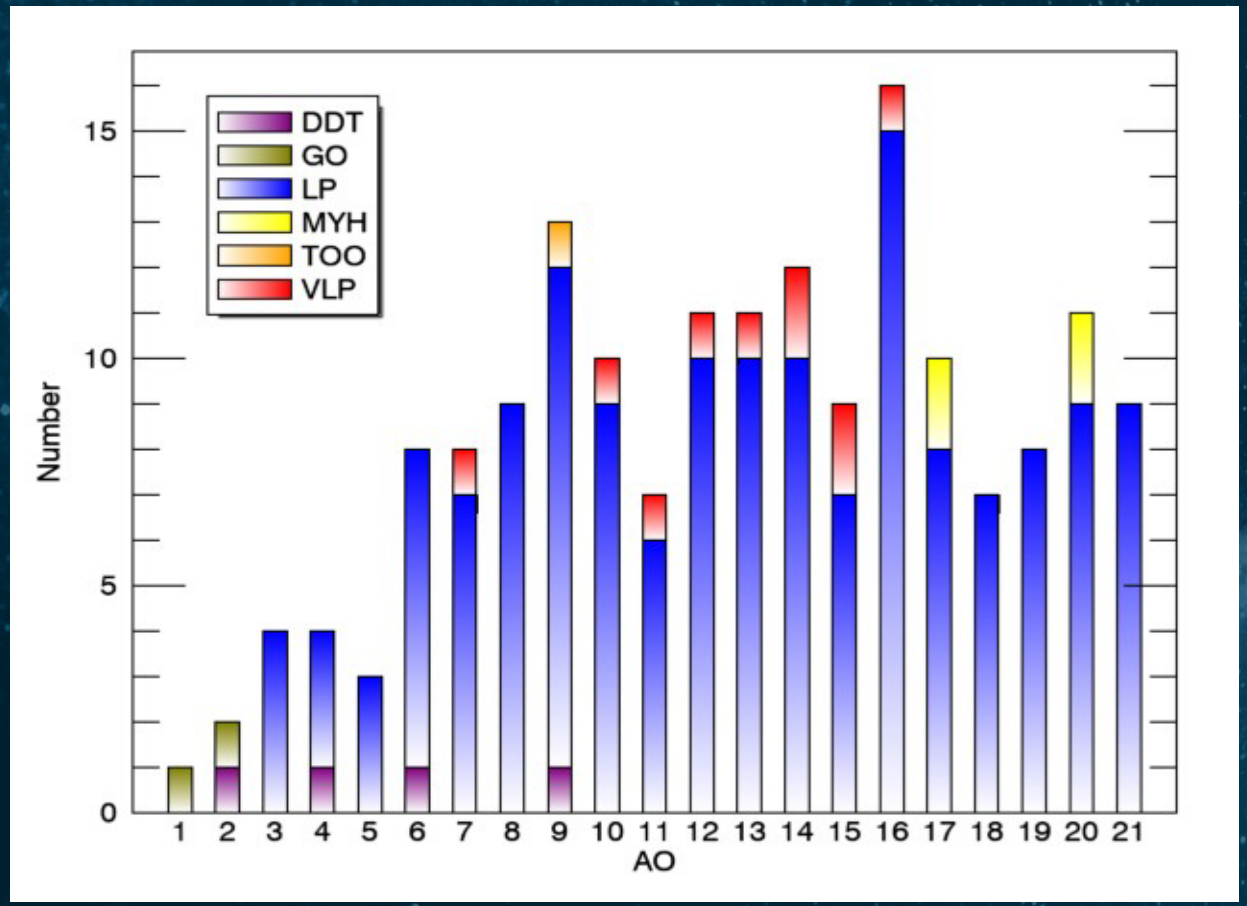
Publications

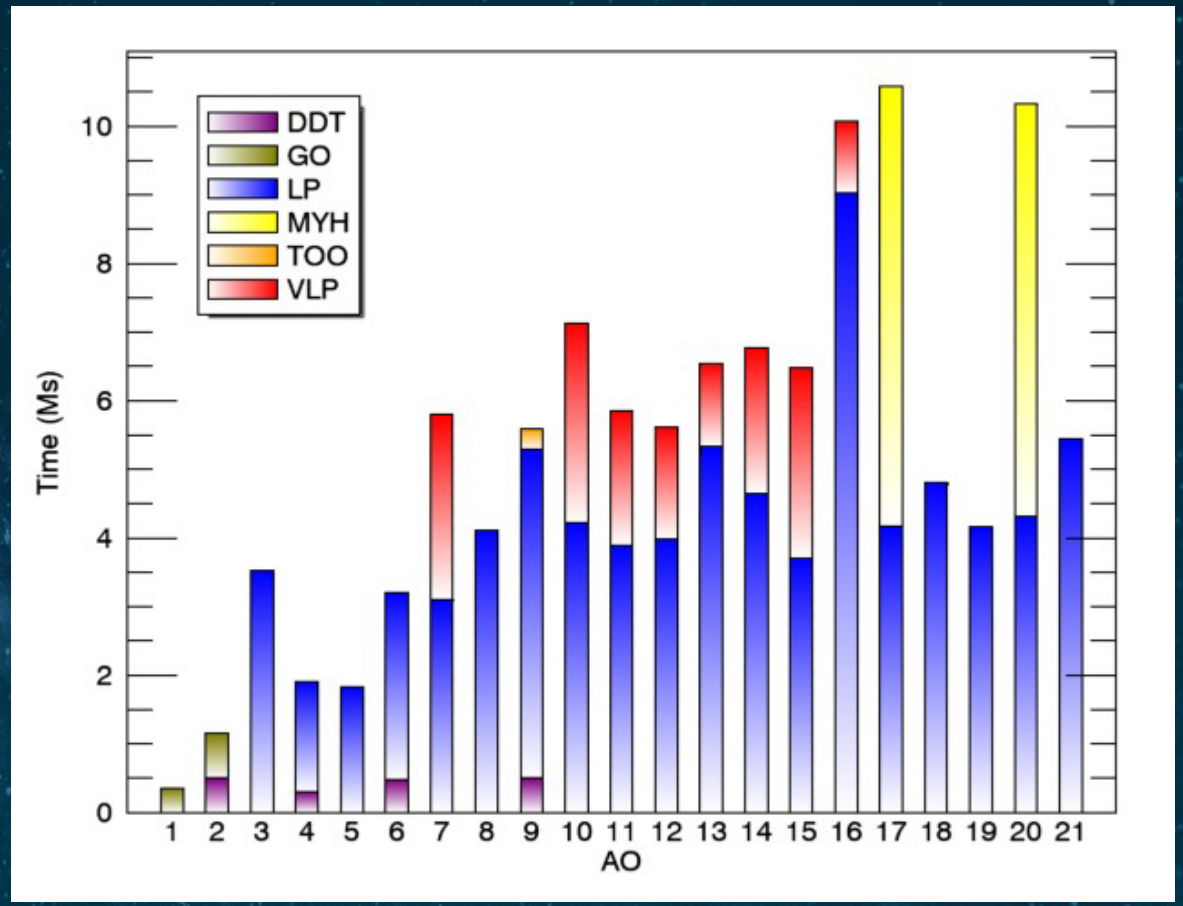


Publications: Nature and Science Papers



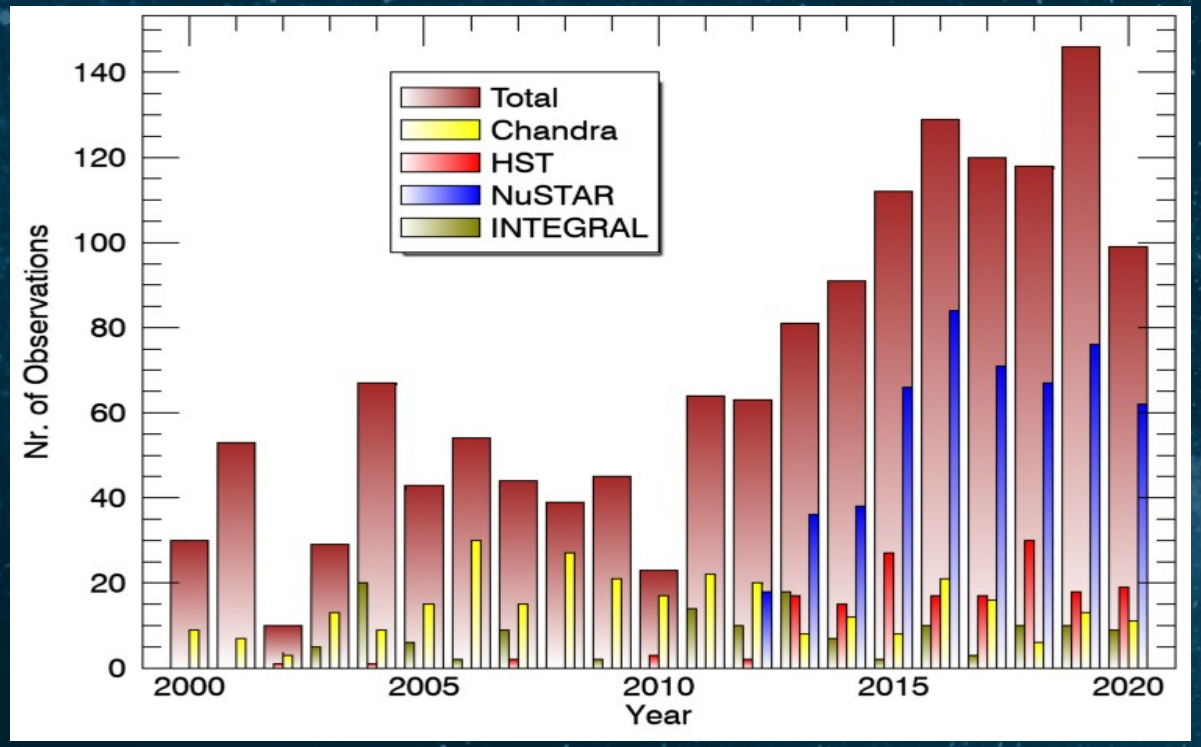
Evolution of Large and Multi-Year-Heritage Programmes

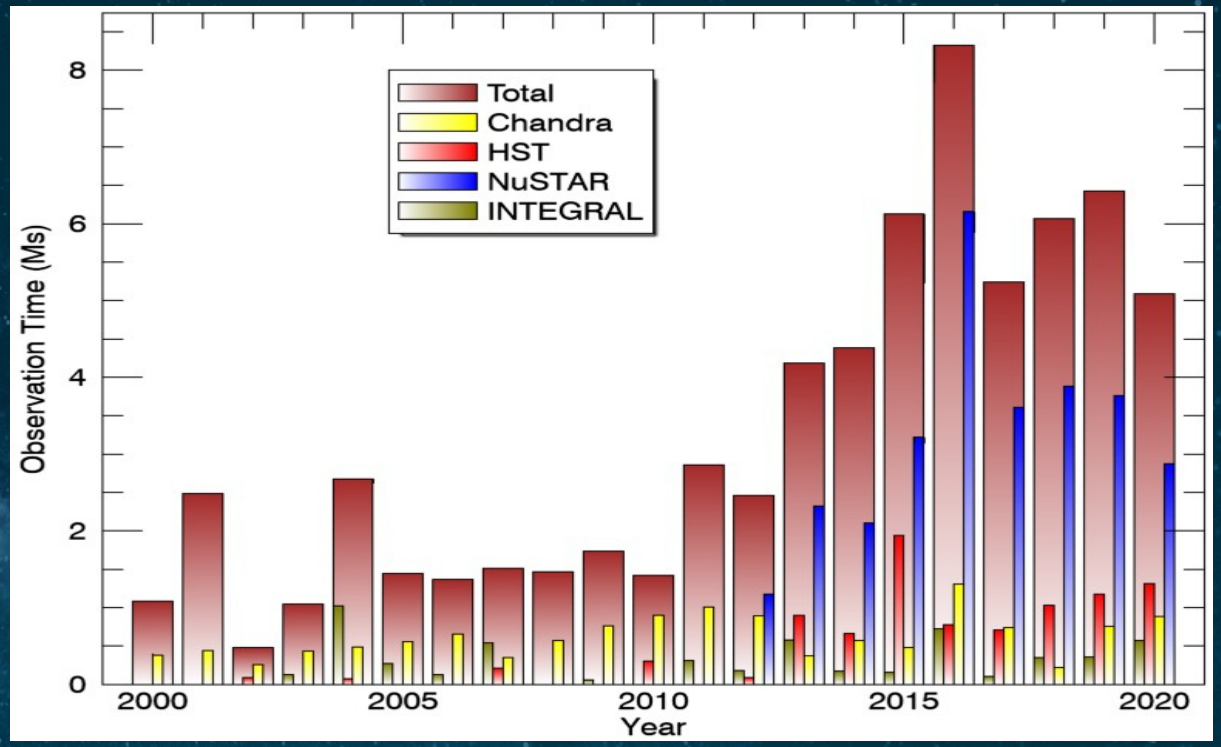




Courtesy Pedro Rodriguez

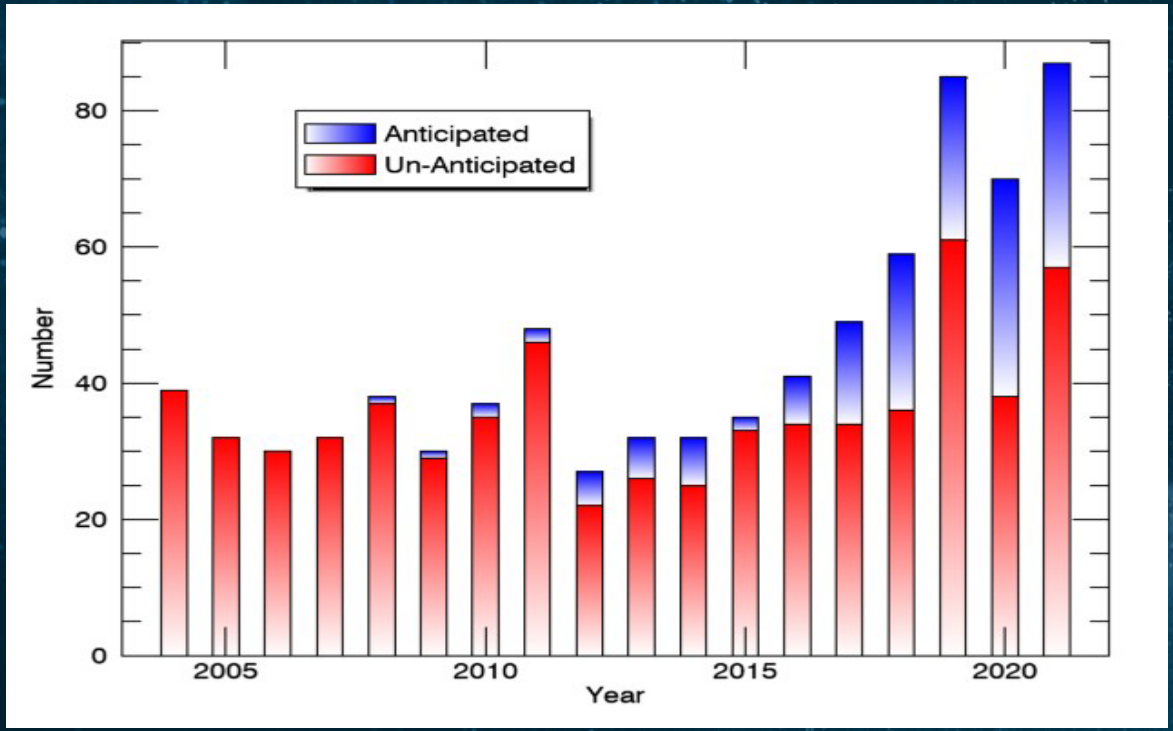
Evolution of Coordinated Observations

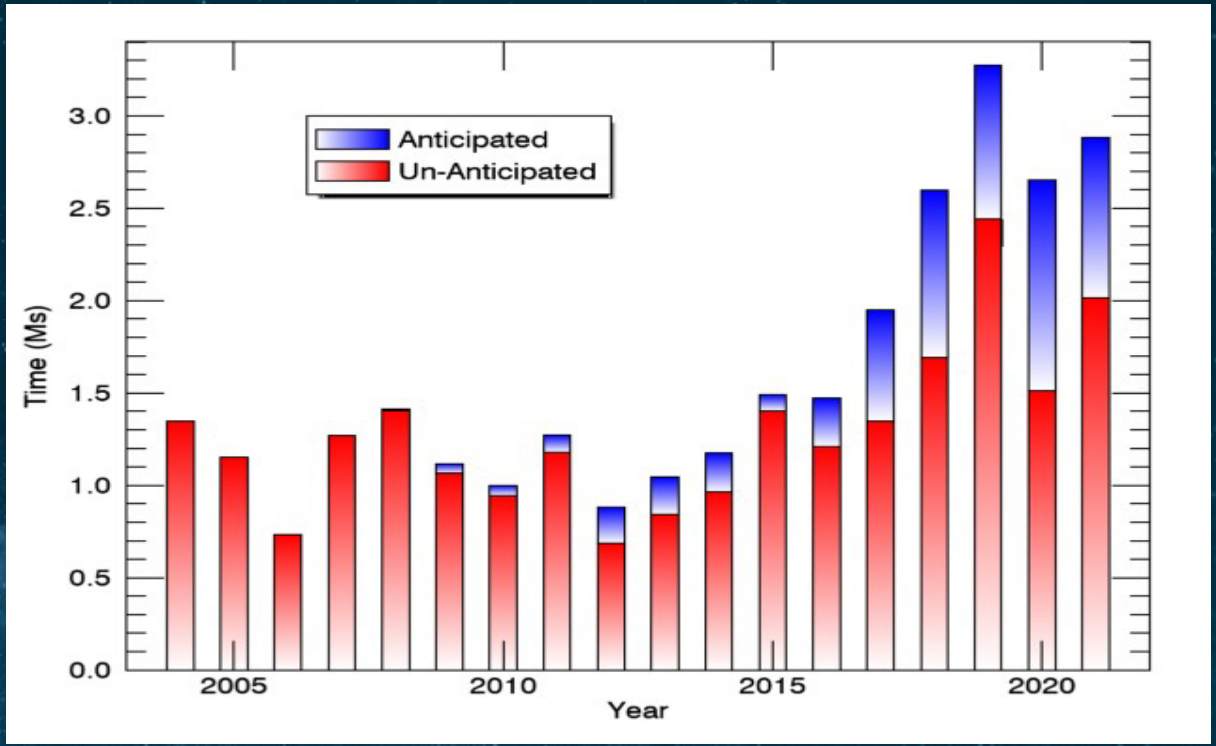




Courtesy Pedro Rodriguez

Evolution of TOOs

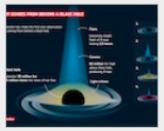




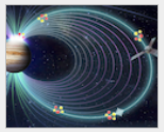
Courtesy Pedro Rodriguez

Public Outreach I

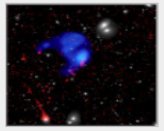
29-Jul-2021
XMM-NEWTON SEES LIGHT ECHO FROM BEHIND A BLACK HOLE
For the first time, astronomers have seen light coming from behind a black hole. Using ESA's XMM-Newton and NASA's NuSTAR space telescopes, an international team of scientists led by Dan Wilkins of Stanford University observed extremely bright flares of X-ray light coming from around a black hole.
Further details on **ESA's Science & Exploration** web portal.



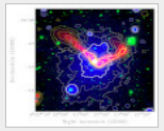
12-Jul-2021
THE MYSTERY OF WHAT CAUSES JUPITER'S X-RAY AURORAS IS SOLVED
The 40-year-old mystery of what causes Jupiter's X-ray auroras has been solved. For the first time, astronomers have seen the entire mechanism at work – and it could be a process occurring in many other parts of the Universe too.
Further details on **ESA's Science & Exploration** web portal.



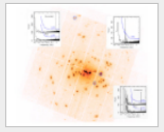
29-Jun-2021
ORPHAN CLOUD DISCOVERED IN GALAXY CLUSTER
New observations made with ESA's X-ray XMM Newton telescope have revealed an "orphan cloud" – an isolated cloud in a galaxy cluster that is the first discovery of its kind.A lot goes on in a galaxy cluster. There can be anything from tens to thousands of galaxies bound together by gravity.
Further details on **ESA's Science & Exploration** web portal.



28-Jun-2021
MATTER HIGHWAY IN SPACE MAKES GALAXY CLUSTERS GROW
Six months ago, astronomers at the University of Bonn reported the discovery of an extremely long intergalactic gas filament with the X-ray telescope eROSITA...To do this, the researchers combined images from several sources: the SRG/eROSITA, XMM-Newton and Chandra satellites.
Further details on **Argelander-Institut für Astronomie** web portal.

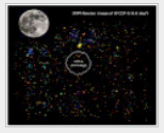


25-Jun-2021
THE EXTRAS PROJECT: EXPLORING THE X-RAY TRANSIENT AND VARIABLE SKY
Everything flows. Time is a fundamental perception in our life. In this paper, De Luca and collaborators investigate the timing properties of ~400,000 X-ray sources found in the XMM-Newton database for over 10 years of observations.
Further details on **Astronomy & Astrophysics** web portal.



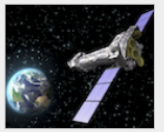
10-Jun-2021
SCIENTISTS MEASURED THE CENTRAL DENSITY OF A WHITE DWARF FOR THE FIRST TIME
An international collaboration recently measured the central density of white dwarf just before exploding as a so-called Type Ia supernova. Using data obtained from the astronomical satellite XMM-Newton, they made observations of the supernova remnant 3C 397 and measured its central density.
Further details on **Tech Explorist** web portal.

08-Jun-2021
NEW X-RAY MAP REVEALS GROWING SUPERMASSIVE BLACK HOLES IN NEXT-GEN SURVEY FIELDS
One of the largest X-ray surveys using the European Space Agency's XMM-Newton space observatory has mapped nearly 12,000 X-ray sources across three large, prime regions of the sky.The X-ray sources represent active galactic nuclei and galaxy clusters...
Further details on **Penn State** web portal.



26-Oct-2021
COULD THIS BE A PLANET IN ANOTHER GALAXY?
Using ESA's XMM-Newton and NASA's Chandra X-ray space telescopes, astronomers have made an important step in the quest to find a planet outside of the Milky Way.
Further details on **ESA's Science & Exploration** web portal.

22-Oct-2021
NEEDLES IN A HAYSTACK: SEARCHING FOR ISOLATED NEUTRON STARS IN A MASSIVE CATALOG
"Candidate isolated neutron stars in the 4XMM-DR10 catalog of X-ray sources". The authors of today's paper chose the recently-released 4XMM-DR10 catalog, containing the results of 849,991 detections by the XMM-Newton x-ray space telescope.
Further details on **Astrobites** web portal.



20-Sep-2021
HEAVY METALS HINT AT AN UNUSUALLY DENSE WHITE DWARF
A team of astronomers led by Yuken Ohshiro (University of Tokyo) used X-ray observations from the space-based XMM-Newton observatory to detect the presence of heavy metals in supernova remnant 3C 397.
Further details on **AAS Nova** web portal.

31-Aug-2021
ASTRONOMERS LOCATE THE SOURCE OF HIGH-ENERGY COSMIC RAYS
Roughly a century ago, scientists began to realize that some of the radiation we detect in Earth's atmosphere is not local in origin... For the sake of their study, the team relied on data obtained by the HESS, a VHE gamma-ray observatory located in Namibia combined with X-ray data obtained by the ESA's X-ray Multi-Mirror Mission (XMM-Newton).
Further details on **Universe Today** web portal.

17-Aug-2021
XMM-NEWTON 21ST ANNOUNCEMENT OF OPPORTUNITY (AO-21)
The XMM-Newton Twenty-first Announcement of Opportunity is now open and observing proposals may be submitted.
The deadline is **8 October 2021, 12:00 UT**
Further details here on our **XMM-Newton SOC website**.

29-Jul-2021
STANFORD ASTROPHYSICISTS REPORT FIRST DETECTION OF LIGHT FROM BEHIND A BLACK HOLE
Fulfilling a prediction of Einstein's theory of general relativity, researchers report the first-ever recordings of X-ray emissions from the far side of a black hole. This work was supported by the NASA NuSTAR and XMM-Newton Guest Observer programs.
Further details on **Stanford News** web portal.

Public Outreach II

6-Apr-2022

A SPIRAL GALAXY THAT DOESN'T PLAY BY THE RULES

The authors begin by introducing seven superluminous spiral galaxies, a recently discovered class of huge galaxies with spiral or lenticular shapes. Using the X-ray telescope XMM-Newton, the authors found no X-ray emission surrounding two of their galaxies.

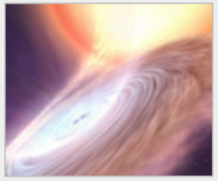
Further details on **AAS Nova** web portal.

7-Mar-2022

POWERFUL WARM WINDS SEEN BLOWING FROM A NEUTRON STAR AS IT RIPS UP ITS COMPANION

Using the most powerful telescopes on Earth and in space, a team of astronomers has found for the first time blasts of hot, warm and cold winds from a neutron star whilst it consumes matter from a nearby star.

Further details on **Eurek Alert** web portal.

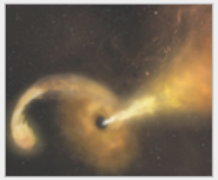


3-Mar-2022

A POTENTIAL NEW SOURCE OF QUASI-PERIODIC ERUPTIONS

Chakraborty and collaborators searched for quasi-periodic eruptions in archival observations from the X-ray Multi-Mirror Mission (XMM-Newton), a space telescope that has been observing the X-ray sky since 2000.

Further details on **AAS Nova** web portal.

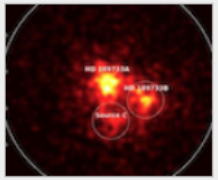


9-Feb-2022

STUDY INVESTIGATES X-RAY VARIABILITY OF THE BINARY SYSTEM HD 189733

Astronomers from Italy and Spain have observed a binary system known as HD 189733, using ESA's XMM-Newton satellite. Results deliver essential information regarding the peculiar X-ray variability of this binary.

Further details on **Phys** web portal.



Workshop 2021

A HIGH-ENERGY VIEW OF EXOPLANETS AND THEIR ENVIRONMENTS

24-28 May 2021

Organised by the European Space Astronomy Centre (ESAC)
Villafranca del Castillo
Madrid, Spain

The workshop will be held as a video conference.

- Chairperson of Scientific Organizing Committee: Prof. Katja Poppenhaeger
- 353 (Register) Participants
- ➔ **Great Success**
- Proceedings will be published as issue of Astronomical Notes

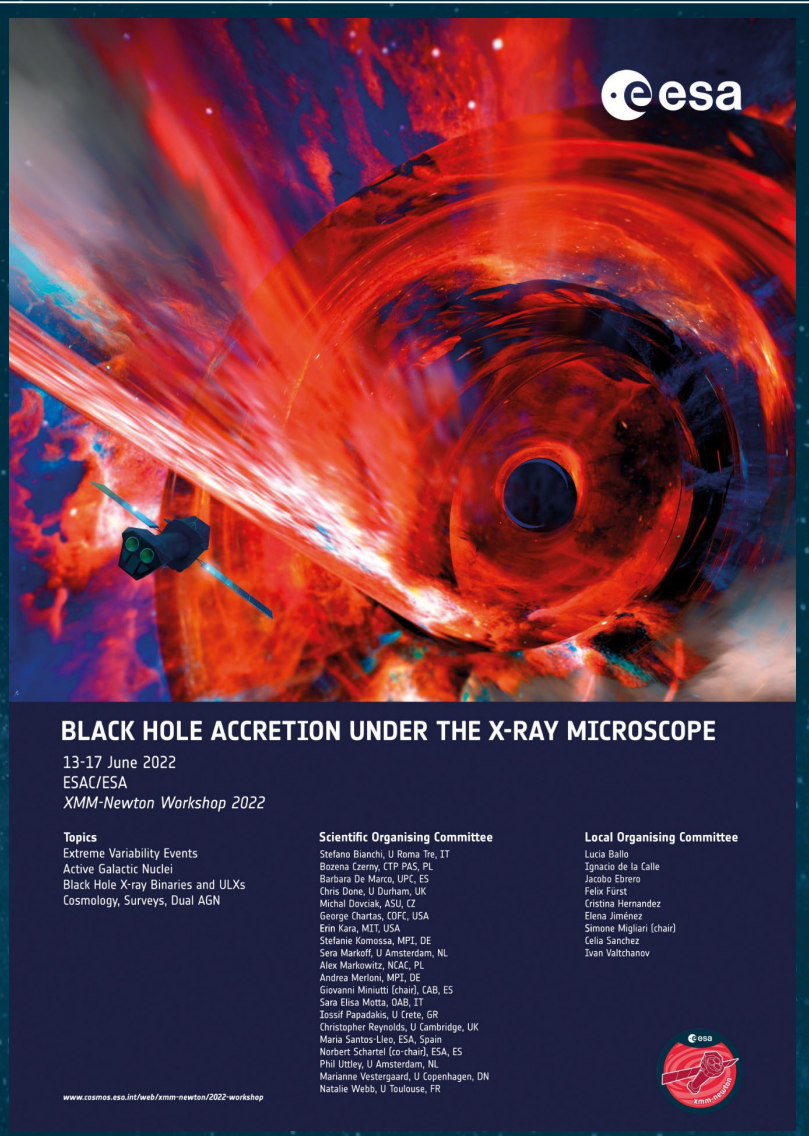
Workshop 2022

BLACK HOLE ACCRETION UNDER THE X-RAY MICROSCOPE

14-17 June 2022

European Space Astronomy Centre (ESAC)
Villafranca del Castillo
Madrid, Spain

- Chairperson of Scientific Organizing Committee: Dr. Giovanni Miniutti
- 90 contributed talks
- Proceedings will be published as issue of Astronomical Notes



Future of Workshops and Conferences?

- 2023 The X-ray Universe Conference?
- 2024 Workshop
  - ➔ Suggestions of topic & title & Chairperson of scientific organizing committee

Mission Extension

- Mission extension scheme is changed from 2 + 2 years to 3 + 3 years

- Currently, XMM-Newton:
  - Approval for 2021 and 2022
  - Tentative approval for 2023 – 2025

- Proposal sent for (final decision only March 2023 (after meeting of ministers November 2023)):
  - Approval for 2023 – 2025
  - Tentative approval for 2026 – 2028

XMM-Newton User Model

- The aim of defined proprietary periods is to give Principal Investigators (PI, compare XMM-Newton user model), a fair and reasonable opportunity to publish their XMM-Newton data in a refereed journal. This covers both normal proposals and unanticipated Target of Opportunity (TOO) notifications. At the same time, the rules ensure that data are made available to the worldwide scientific community in a timely manner.
- XMM-Newton user model
  - The user model assumes a small research group as typically found in European universities. All permanent staff have significant teaching duties that, during certain periods of the year, allow very limited time for research. In addition, the research group may contain non-permanent full-time researchers (e.g. post-doc), post-grad students and other students, the numbers of which can fluctuate and may have other responsibilities. It is recognised that the combined teaching and research environment, even in small research groups, can often generate new ideas and hypotheses, sometimes of a transformational nature, that lead to subsequent XMM-Newton programs.
  - In many ESA member states, an accepted XMM-Newton proposal ensures funds for a post-doc or a Ph.D. position. Experience shows that a 1-year proprietary period is the minimum required within most PhDs, and is often too short to get results published, which is relevant especially in the case of high-interest data.
  - Based on experience early in the mission, a proprietary period of 0.5-year is generally granted for unanticipated TOOs so as: (1) to allow publication in high-profile journals, e.g. Nature and Science; (2) to avoid hasty and poor detection claims in circulars.

I thank M. Santos-Leo and P. Charles for helpful comments

MYHP: Quo Vadis?

+ orbit provides less time outside radiation