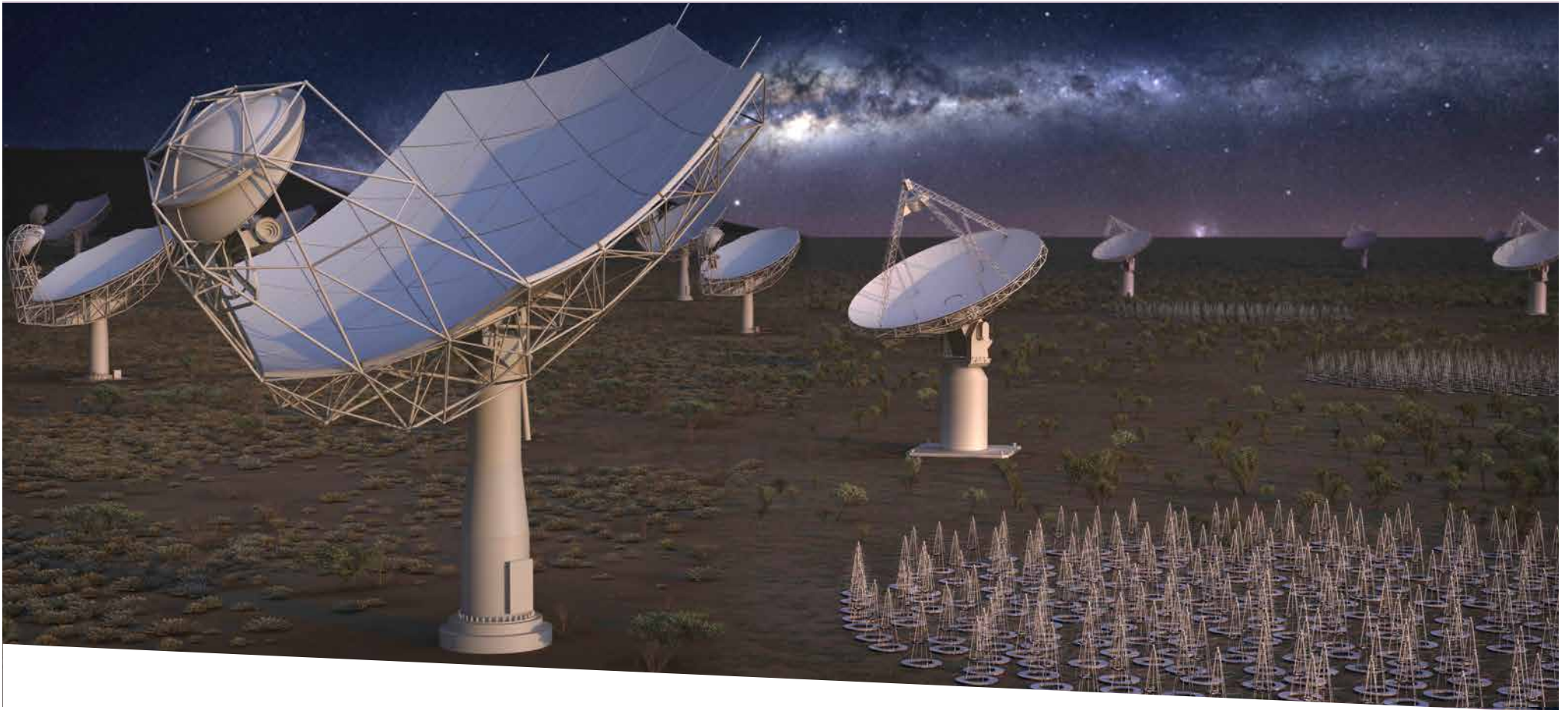


# SKA SWG Update



**SQUARE KILOMETRE ARRAY**

Exploring the Universe with the world's largest radio telescope

**Robert Braun, Science Director**

14 November 2017

# SKA Science Working Groups and Focus Groups



SWGs and FGs	Co-Chairs
Extragalactic (non-HI) Spectral Line	Rob Beswick (UK, 04/15), <b>Francoise Combes (FR, 03/17)</b>
Our Galaxy	Grazia Umata (IT, 03/15), <b>Erik Rosolowsky (CA, 10/17)</b>
Solar, Heliospheric & Ionospheric Physics	Eduard Kontar (UK, 08/15), Divya Oberoi (IN, 08/15)
Epoch of Reionization	Garreth Mellema (SE, 08/15), <b>Gianni Bernardi (IT, 09/17)</b>
Cosmology	<b>Richard Battye (UK, 12/17), Laura Wolz (AU, 12/17)</b>
Extragalactic Continuum	<b>Mark Sargent (UK, 10/17), Nathasha Hurly-Walker (AU, 02/18)</b>
Cradle of Life	<b>Izaskun Jimenez-Serra (ES, 08/17), Doug Jonstone (CA, 10/17)</b>
HI galaxy science	<b>Sarah Blyth (ZA, 10/17), Lourdes Verdes-Montenegro (ES, 11/17)</b>
Magnetism	Ann Mao (DE, 12/15), <b>George Heald (AU, 10/17)</b>
Pulsars	Ingrid Stairs (CA, 02/16), <b>Willem van Straten (NZ, 11/17)</b>
Transients	Michael Rupen (CA, 08/15), <b>Jason Hessels (NL, 08/17)</b>
VLBI	Cormac Reynolds (AU, 08/15), <b>Tao An (CN, 11/17)</b>
High Energy Cosmic Particles	Justin Bray (UK, 08/15), Clancy James (AU, 08/15)

- Refresh of SWG Co-Chairs every ~two years, **appointments almost fully implemented**

# SKA1 Science and Ops Planning

Assembly, Integration & Verification Event	Low Stations	Date for Low	Mid Dishes SKA+MK	Date for Mid
AA1	18	C0+35	8 + 0	C0+34
AA2	64	C0+47	64 + 0	C0+44
AA3	256	C0+58	120 + 8	C0+58
AA4	512	C0+70	133+64	C0+67

- Availability of installed and stand-alone tested stations and dishes relative to C0, the date of first construction contracts being awarded (currently expect C0 = 28/03/2020)

# SKA1 Science and Ops Planning

Science Events	Interval (months)	Start Date	Sched Date	Final Date
Major Science Meetings	24	06/2014		--
KSP Workshops	18	08/2015		KSP Kick-off
Data / Calibration Challenges	12	06/2018		KSP Kick-off
Science Commissioning	84	T1	T1	AA4+36
Science Verification	4	AA2+5.5	AA2+9	AA4-3
Shared Risk PI Observing	15	AA4-3	AA4+3	AA4+12
Normal PI Observing	12	AA4+6	AA4+12	-
KSP Observing	36	AA4-15	AA4+24	-

- Overview of major activities relating to SKA1 science planning
  - Preparatory work: meetings, workshops, data challenges
  - Observations: commissioning, verification, shared-risk, PI, KSP

# SKA1 Science and Ops Planning

Science Verification Event	Duration (months)	External Event (months)	Start Date (months)
Call / Deadline for Suggestions	2		AA2 + 5.5
Internal Assessment	1		AA2 + 7.5
Allocation	0.5		AA2 + 8.5
Start Schedule = SM1	0	AA2 + 9	AA2 + 9
Observe	0.5		AA2 + 9
Repeat as needed	X		AA2 + 9 + X

- Science Verification Observations
  - Requirements met at AA2 (64 dishes or antennas) + 9 months
  - Availability of correlator and some basic SDP functionality
  - Call for suggested targets for specific commissioning campaigns
  - All data made public

# SKA1 Science and Ops Planning

Shared Risk PI Event	Duration (months)	External Event (months)	Start Date (months)
Proposal Call / Deadline	2		AA4 – 3
Proposal Review	3		AA4 – 1
Proposal Allocation	1		AA4 + 2
Start Schedule = SM2	0	AA4 + 3	AA4 + 3
Observe	9		AA4 + 3

- Shared Risk PI Observations
  - Requirements met at AA4 (all dishes or antennas) + 3 months
  - At least some modes commissioned
  - If unsuccessful, not repeated, could be used for commissioning new modes

# SKA1 Science and Ops Planning

Normal PI Event	Duration (months)	External Event (months)	Start Date (months)
Proposal Call / Deadline	2		AA4 + 6
Proposal Review	3		AA4 + 8
Proposal Allocation	1		AA4 + 11
Start Schedule = SM3	0	AA4 + 12	AA4 + 12
Observe	12		AA4 + 12

- PI Observations
  - Requirements met at AA4 (all dishes or antennas) + 12 months
  - Offered modes in Cycle are commissioned

# SKA1 Science and Ops Planning

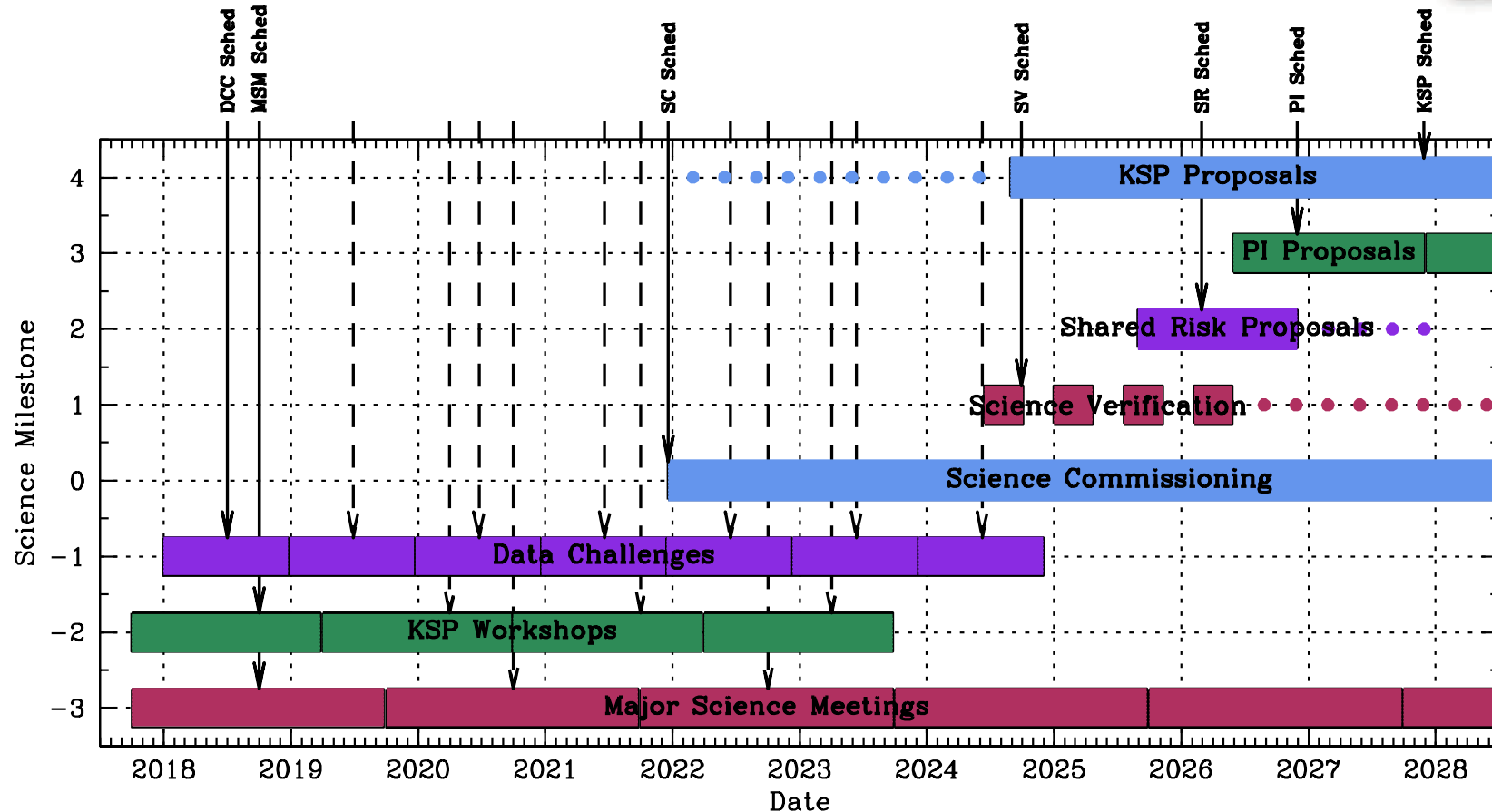


KSP Event	Duration (months)	External Event (months)	Start Date (months)
Preparatory activities	30		AA4 – 45
Lol Call / Deadline	3		AA4 – 15
Lol Assess	2		AA4 – 12
Lol Coordination Workshop Organise / Carry-out	6		AA4 – 10
Proposal Call / Deadline	12		AA4 – 4
Proposal Review	4		AA4 + 8
Proposal Allocation / Resource	12		AA4 + 12
Start Schedule = SM4	0	AA4 + 24	AA4 + 24
Observe	N x 12		AA4 + 24
Progress Review	N x 12		AA4 + 36, 48, ...

- Key Science Projects Observations
  - Requirements met at AA4 (all dishes or antennas) + 24 months
  - Stable, well-understood system

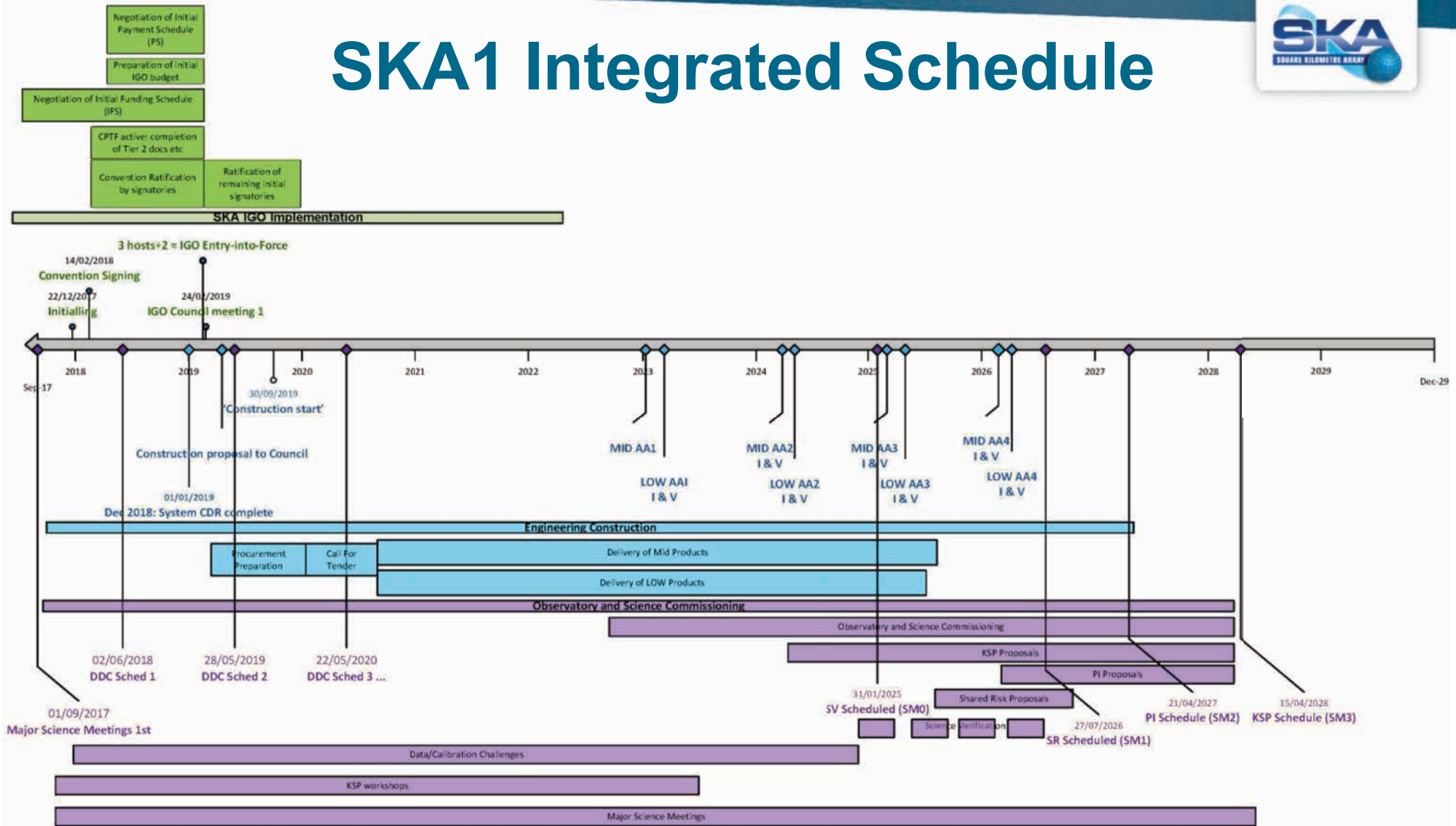


# SKA1 Science Milestones



- Overview of preparatory and scientific observing activities
- KSP Preparatory Activities
  - Pilot surveys in Shared-risk and PI Proposal Cycles
  - Commissioning data to facilitate survey and pipeline design

# SKA1 Integrated Schedule



- Overview of policy, engineering and science activities

# Recent and Upcoming Meetings

- Physics opportunities with a new universe's view: the SKA radio telescope, Valencia, 6 & 7 November
  - <http://riastronomia.es/en/physics-opportunities-with-new-universes-view-the-ska-radio-telescope/>
- SKA Board Meeting 25, 8 & 9 November, Bologna, main items
  - New chair: Catherine Cesarsky
  - SKAO Budget for 2018, outlook for 2019
  - Construction and Operations Costing update
  - Integrated Schedule: policy, engineering, science
  - Bridge from pre-construction to construction
  - Update from guests
- EWASS-2018, Liverpool, 3 – 6 April 2018
  - “Opening new frontiers in cosmology with the Square Kilometre Array”
- SKA Key Science Project Workshop, SKA HQ, 10 – 14 September 2018
  - Suggestions for Science Focus of Meeting ??

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