



SKADS Workshop – Perth



Date: 10 April 2008
 Venue: BankWest lecture theatre (Building 200), Curtin University


Purpose
 The aim is to exchange design, cost and industrial information within the SKADS, ASKAP and other international programmes. Active discussion is encouraged.

Speakers
 The speakers will be taken from the substantial SKADS and international expertise available in Perth. The suggested speakers are shown, and the list will be updated when final confirmed arrivals in Perth are known.


Draft Agenda

8.15	Coffee and Registration	
9.00	Welcome by Curtin PVC research	Linda Kristjanson
	Meeting Objectives	Arnold van Ardenne
9.15	SKADS Aperture Array design considerations	Andrew Faulkner
9.35	EMBRACE progress	Dion Kant
9.50	SKADS technical developments, including:	Mike Jones/ Andrew Faulkner/ Sascha Schedlwy
	• Beamformer design	
	• Data and Phase transfer	
	• Array and element concepts	
	• LNA progress	
10.20	ASKAP industry links overview	Carole Jackson
10.30	Coffee Break	
11.00	Science and configuration work	Steve Rawlings
	• Science simulations and findings	
	• Configuration and cost implications	
11.30	Progress and directions in SKA costing	Peter Hall
11.45	SKADS cost Modelling	Rosie Bolton
	• Scaleable Aperture Array model	
	• Integration with CDIT	
12.20	Wrap up and closing comments	Peter Wilkinson
12.30	Lunch	

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SKADS Status April 2008

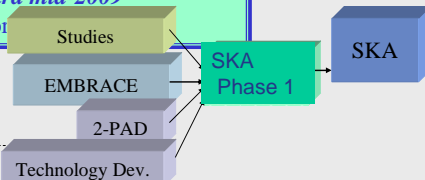


SKADS: The European SKA Design Study
towards the Square Kilometre Array

The electronic pointing and control concept for the SKA

A European project
 involving 26 partners from Radio Astronomy
 Institutes, Universities and Industry in 9 EU countries plus
 Russia, South Africa, Australia & Canada

A Cohering Program toward mid-2009
www.skads-eu.org



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    graph LR
      Studies[Studies] --> SKA_Phase1[SKA Phase 1]
      EMBRACE[EMBRACE] --> SKA_Phase1
      2-PAD[2-PAD] --> SKA_Phase1
      TechDev[Technology Dev.] --> SKA_Phase1
      SKA_Phase1 --> SKA[SKA]
    
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Partners in EU Countries, others and associates



- Netherlands
 - UK
 - France
 - Italy
 - Germany
 - Spain
 - Poland
 - Sweden
 - Portugal (*from 01/07/07*)
- In SKADS (drawing on EC funds):
- Canada
 - Russia
 - South Africa
 - Australia
- Associates with no contractual obligations to/from SKADS
- US (USSKAC)
 - China (NAOC)



Note: SKADS Objectives do not include to prove scientific performance capability of



- AA's:
- Industry involved from the start

SKADS aims to

- **Demonstrate SKA Scientific Viability and Readiness**
- **Demonstrate cost-effective Engineering Solutions and Technological Readiness**
- **Deliver a costed SKA Design**

Activity Scope	Percentage of total)
Organization & Management	8
System level Aspects	22
Tile Level Technologies	30
Demonstrators	30
Assessments and Integration Plan	10

Work has Clear objectives, Milestones and Deliverables to provide outcomes in *measurable and verifiable form*



SKADS design studies



- DS1 Management
- DS2 Science and Astronomical Data Simulations
- DS3 The Network and its Output Data
- DS4 Technical Foundations and Enabling Technologies
- DS5 Aperture Array Demonstrator
- DS6 Cylindrical Concept Demonstrator
- DS7 Assessment of Preparatory Work & Studies
- DS8 Overall System Design and Preliminary SKA Plan

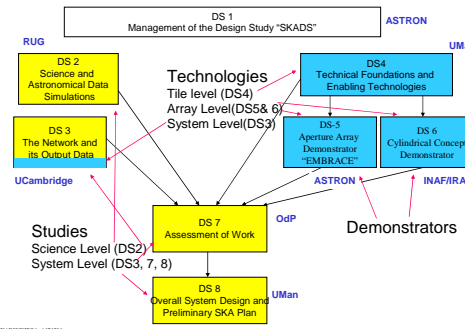
Coordinator:
AvA, ASTRON

Project Manager: Andre van Es, ASTRON

Project Scientist: Steve Torchinsky, Observatoire de Paris

Project Engineer: Andrew Faulkner, Univ. Manchester


Structure optimized to continuously map the scientific requirements on the technical specifications to produce a common design goal



SKADS progress



- After successful MTR, SKADS now in finalizing third year.
 - will enter fourth and last year from 1 July 2008
 - new: emphasizing system design and technology readiness
- Portugal has joined SKADS through IST-CENTRA
- Prepared for optimal dissemination e.g. new brochure, workshops etc (next slides)
- Connected to PREPSKA preparations and now preparing for next step (later)
- Next Board meeting in Liverpool 19-20/06/08

List of DSx - Task Leaders and Task Names		Leadership adaptation		
AvA 310507v17				
Design Studies (DS) Leading participant	DS Tasks	Leading Participant	DS-Task	DS & DS-T Leaders
DS1 - Coordination and Management ASTRON www.skads-eu.org info@skads-eu.org	Coordinator	ASTRON	SKADS Coordination and Management Project Office (ASTRON) Project Manager (ASTRON) Project Scientist (OPAR) Project Engineer (UMAN)	Arnold van Ardenne Truus van den Brink Andre van Es Steve Torchinsky Andrew Faulkner Thijs van de Hulst Steve Rawlings Cormac Reynolds
DS2 - Science & Technical Specification RUG/Kapteyn Institute	DS Leader DS2 - T1 DS2 - T2	RUG Oxford JIVE	Science Simulations Astronomical Data Simulations	Leonid Gurvits
DS3 - The Network & its Output Data Cambridge	DS Leader DS3 - T1 DS3 - T2 DS3 - T3 DS3 - T4 DS3 - T5 DS3 - T6	Cambridge UMan ASTRON Cambridge OPAR Cambridge ASTRON	Network Infrastructure & Data Transmission Data Handling, Control and Distributed computing Architecture and the Network Simulator A Study of Siting & Related Issues SKA for the User Scaleable Design and Implementation	Paul Alexander Simon Garrington John Romein Paul Alexander Wim van Driel Paul Alexander Albert-Jan Boonstra
DS4 - Technical Foundations & Enabling Technologies UMan	DS Leader DS4 - T1 DS4 - T2 DS4 - T3 DS4 - T4 DS4 - T5 DS4 - T6	UMan UMan INAF-IRA OPAR ASTRON Oxford U Man	Front End-Technologies Signal Control & digitisation RFI Mitigation Strategies Wideband Integrated Antennas Beam-forming at patch level The 2-PAD Demonstrator	Andrew Faulkner Mo Missous Stelio Montebugnoli Pierre Colom Jan Geralt bij de Vaate Mike Jones Anthony Brown
DS5 - The EMBRACE Demonstrator ASTRON	DS Leader DS5 - T1 DS5 - T2 DS5 - T3	ASTRON ASTRON ASTRON OPAR	Design of EMBRACE Development of EMBRACE as a 5 EMBRACE Assessment of Perform	Parbhu Patel Dion Kant
DS6 - The Cylinder Demonstrator INAF-IRA	DS Leader DS6 - T1 DS6 - T2 DS6 - T3 DS6 - T4	INAF-IRA INAF-IRA INAF-IRA INAF-IRA ASTRON	Design of Sub-Systems Development and Demonstration Assessment of Performance Phased Arrays on Concentrators	 Dion Kant
DS7 - Assessment and Critical Reviews OPAR	DS7 - T1	OPAR	Continuous Assessment and Critic	
DS8 Overall Systems Design and Preliminary SKA Plan UMan	DS8 - T1	UMan	Overall System Design and Preli	



SKADS DOW Workshops



1ST SKADS Workshop
4th September 2006 in OBSERVATOIRE DE PARIS
(combined with SKA workshop)

2nd SKADS WORKSHOP
10-11 October 2007 in OBSERVATOIRE DE PARIS, site Meudon
Purpose: Review SKADS progress, Opportunities and risks,
Prepare for Mid-Term Review 12th October,
Prepare SKADS for 2nd half of project
Activity focussed around evolving SKADS Benchmark Scenario

Today: SKADS Mini Workshop
10 April 2008 Curtin University, Perth (W.A.)
Focussed around science, design and costing

Now planning: **3d SKADS Workshop**
17- 18 September 2008
Lisbon (Port.)

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Dedicated workshop: Simulations for the SKA, Pushchino



- Organized by Pushchino Radio Observatory
- Pushchino July 30- 1 August
- Primarily aimed at connecting scientific- and astronomical- data simulations (DS2) and the SKA System (DS3)
- 27 participants from 7 countries
- Proc. Available through SKADS website



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SKADS Marie Curie



- Three year SKADS Marie Curie Training and Conference program 2007- 2009 Young scientist and engineers
 - 6 Workshops, 1 held at ASTRON, 1 held at RUG, next in Bonn (this week)
 - 3 Schools, 1 held in Bologna, 1 now in planning stage (Spain)
 - 10 participating institutes





- Organized by IRA-INAF Sept 2007
- Aimed at younger generation of scientists and engineers
- 39 students from 10 EC countries
- 16 teachers from 7 countries
- Covering:
 - fundamentals of radio astronomy and radio interferometry
 - technical developments
 - science highlights in particular relevant to SKA/LOFAR
- Great success!

Note: Cosmology, Galaxy Formation and Astroparticle Physics on the Pathway to the SKA, Proc.Conf. Oxford 10-12 April 2006. Eds.: H-R. Klöckner, S. Rawlings, M. Jarvis, A. Taylor. Published ASTRON, ISBN 978-90-805434-4-7, 187pp.

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A. Schools																																																																																																																																																																																															
1	Radio astronomy: fundamentals and the new instruments	Instituto di Radioastronomia (IT) - Italy Fundacion General de la Universidad de Alcala (ES) - Spain Observatoire de Paris (FR)- France																																																																																																																																																																																													
B. Astronomical workshops: scientific aspects of SKA(DS)																																																																																																																																																																																															
1	SKA and other (large) astronomy projects: synergy	Max-Planck-Institut für Radioastronomie (D) - Germany																																																																																																																																																																																													
2	Deep-field imaging with SKA	University of Cambridge (UK) - UK																																																																																																																																																																																													
C. Technical workshops: antennas and enabling technologies for SKADS																																																																																																																																																																																															
1	Antenna array design: from demonstrator to (low-cost) full scale	ASTRON (NL) - the Netherlands																																																																																																																																																																																													
2	Beamforming techniques, signal processing platforms and embedded software design	University of Manchester (UK) - UK																																																																																																																																																																																													
D. Mixed workshops: science and instruments																																																																																																																																																																																															
1	Wide field imaging, calibration and data reduction techniques	JIVE (NL), University of Groningen (NL) - the Netherlands																																																																																																																																																																																													
2	Multi-field and multi-beam science with SKA	University of Oxford (UK) - UK																																																																																																																																																																																													
3	Practical assignment	Various hosts and locations - coordination and budget at ASTRON																																																																																																																																																																																													
SKADS Marie Curie Conferences and training courses: planning 1 as planned 2 as (will be) executed																																																																																																																																																																																															
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