Report of the 34th ISYA 2012, Cape Town & Sutherland,

5 – 26 February 2012

Jean-Pierre De Greve, Chairman PG ISYA
29 February 2012

Introduction

The 34th ISYA 2012 was held in South Africa at the South African Astronomical Observatory (SAAO) in February 2012. The school ran from February 5 till February 26, 2012. It was hosted by the SAAO and co-organized by the University of Cape Town (UCT). The following organizations sponsored the ISYA program: International Astronomical Union (**IAU**), The National Research Foundation - South African Astronomical Observatory (**NRF-SAAO**), the University of Cape Town (**UCT**), the Southern African Large Telescope (**SALT**)**.**

The organizers of the 34th ISYA were:
Dr. Petri Vaisanen (SAAO/SALT)
Prof. Patrick Woudt (UCT)
Prof. Patricia Whitelock (SAAO/UCT)
Prof. Jean-Pierre De Greve (VUB)
Dr. Michele Gerbaldi (IAP)
Ms. Nuhaah Solomon (OAD)

The IAU covered travel expenses of the participants and of the lecturers (visa, insurance, and air fare, local transport, and cultural trips), as well as some extra unforeseen costs of the lodging and software provision. The airfares of the participants were minimized as all were bought directly from South Africa thanks to the help of the OAD secretariat. All the other expenses including boarding and lodging were covered by the South African hosts: SAAO and UCT, in large part through a grant from the National Research Foundation (NRF).

1. Location and theme

The South African Astronomical Observatory (SAAO), home of the 11-m Southern African Large Telescope (SALT), is the premier optical and infrared astronomy facility in Africa and plays a leading role in the promotion of astronomy in the continent.

The school was hosted at the prestigious University of Cape Town (UCT), and at SAAO, and part of it was conducted at the SAAO/SALT observatory site at Sutherland, 400km from Cape Town, in the Karoo semi-desert. Lecturers from UCT, SAAO and from abroad were invited to lecture during the school on a range of topics in active astronomical fields.

The overall theme of the school was ***"Observational astronomy in the optical and infrared"***, involving both lectures and observational work in teams. The goal was to give students ideas of modern research projects and to show them which technical expertise is needed to plan, propose for, obtain, reduce and analyse modern astronomical data.

2. Students

Out of 83 candidates, 32 were selected for participation. Three of them withdraw, and three additional candidates were selected. One of the selected students declined at the last moment. The final number of participants is 31. In total there were 18 students from 6 African countries (Ethiopia, Kenya, Nigeria, Tanzania, Uganda and Zambia). 2 students were presently studying in South African universities, but are from Namibia and France, and 11 students were South African.
The gender distribution was 29% female, 71% male. The list of students is attached (*Annex 1*).

3. Arrivals and departures

Students and lecturers were met at the airport, and transport was arranged to bring them to the River View Lodge in Observatory District, within walking distance from the SAAO. A welcome reception with barbecue was organized on Sunday evening, 5 February, at the SAAO auditorium, where participants could also register.

4. Opening ceremony of the ISYA.

The Opening Ceremony was held at UCT on Monday, February 6 at 9 am. The participants were welcomed by Professor Anton Le Roex, Dean of Science of UCT, and by Prof. Patricia Whitelock, Director SAAO. Prof. Michele Gerbaldi addressed the participants on behalf of the ISYA.

5. Program

The overall program is given Annex 3.

5.1. Lectures:

The topics covered were:

- Solar system science
- Galactic astronomy: physical characterization of the stars, emission line stars, binary systems, evolution of close binary systems
- Origin and evolution of galaxies
- Cosmology
- Modern telescopes, instrumentation and observing techniques

The list of lecturers is given in Annex 2. In total, there were 16 lecturers scheduled from 5 countries.

5.2. The schedule of the program with the topics is attached (*Annex 3*). Lectures started at 9:00 am and finished at 12:30, the practical sessions in the afternoon ended at 6:30 pm. There were two teaching slots in the morning, and two in the afternoon, each separated by a coffee/tea break of 30 minutes. The lunch break lasted from 12:30 till 14:00. At the Sutherland observatory the time-table was made compatible with night observations lasting till 4:00 am.

5.3. Student presentations:
Several slots were reserved for student presentations. There were two different types of presentations: individual student presentations for which students could sign up in specific time slots, and group presentations of the observational project and the obtained result. The list is of the projects is given in Annex 4. The lecturers agreed that the presentations were well prepared and of high quality.

5.4. Observational training and data reduction:
Students received lectures on both theoretical and practical aspects of telescopic observations as well as background to prepare the observational projects. The observational projects were assigned by the lecturers. (*Annex 4*)
The observations were conducted by tutors, PhD students and post-docs at SAAO and UCT, (*Annex 2*) and astronomers.

In the week from 15 to 21 February, the students could observe each night from 8:00 pm till 4:00 am on one of the four telescopes, depending of the chosen project:
1.9m (Radcliffe) Telescope, 1.0 m (Elizabeth) Telescope, 0.75 m Telescope and the IRSF - Infrared Survey Facility- a joint Japanese/South African project. These telescopes were equipped with instruments for photometry and spectroscopy.

Michel Dennefeld, lecturer, obtained observations confirming that the possible supernova PSN J23255963-8154333 is indeed a supernova and hence, can be designated as SN 2012ah. His confirmation was possible thanks to assisting observations from several SAAO observers and 13 ISYA students. The resulting IAU circular 3028 is given in Annex 5.

Data reductions were done using IRAF package under the guidance of the tutors. During the first week at SAAO, basic instruction on this package had been given to the students, as well as on Linux system, when necessary. A laptop computer was made available for each pair of students by the SAAO IT department.

5.5. A special seminar was given on 2 topics related to scientific careers:
- Career development (Kartik Sheth, NRAO, USA)
- How to write and publish a research paper, and Applying for a position and writing projects (J.P. De Greve, Brussels, Belgium)

6. Social program

Schedule
February 9, Thursday
19:00-21:00 Picnic dinner at the beach
February 11, Saturday
13:30-19:00 Excursion around Cape Town
February12, Sunday
09:00 – 19:00 Excursion whole day to Cape Point
February 24, Friday
19:00 – 22:00 Dinner and dance at Marco's

7. Closing

At the end of the ISYA, students filled in a 2 page evaluation sheet. The results of that inquiry are found in *Annex 6*. In the

following closing ceremony, the students received their certificate witnessing their participation in the ISYA2012.
A DVD was prepared and given to the participants: one DVD per university represented by the students containing a virtual Linux Ubuntu machine with all the software used during the school, as well as other astronomical software, resources, lectures, etc.
The evaluation of the ISYA 2012 is overwhelmingly positive. An overview arranged per item is given below, as well as a synthesis of the critical comments for future improvement.

8. Evaluation by the students

The statistics of the query are given in Annex 6.

General: The website information and the application handling were considered as good.

Lectures: Lectures were not disapproved for their usefulness, but were not unanimously considered as the most useful ingredient of the ISYA, although under 'observations training' the balance with observations/data reduction was considered just right. This is probably due to the dominant part that observations took in the program (for the first time). There is also a difference in appreciation of the two lecture rooms, one at Cape Town (OK), and the other at Sutherland (less OK, see also under written comments).
We asked the students for their most favourite lecture. Here's the result:

- The lectures of Amanda Gulbis (solar system)

(3x mentioned in the enquiries)

- Kevins' outreach workshop
- Lectures by Michele Gerbaldi
- Spectroscopy lectures and data reduction (4x)
- Cosmology by Roy Maartens
- Galaxy evolution (2x)

- Lectures by Claude (2x)
- Kartik Sheth (lecture 12)
- David Gilbank (3x)
- The Binary Star Evolution (3x)
- Lecture by Kartik – how to be an astronomer
- Scientific writing
- Into the solar system
- Writing CV & papers & proposals (3x)
- Virtual Observations

Observation training: Some improvements possible (see comments). Very good contact with the supervisors.

Presentation exercise: Student presentations were found to be well organized and interesting, with enough time. Its usefulness was considered neutral (13/31 scores of 3 on the scale of 1-5).

Accommodation: The appreciation for the meals at Cape Town was very high, the appreciation for the breakfast somewhat less, and the rooms were evaluated lower than the breakfast, but still on the positive side. Students found Cape Town and Sutherland good places to hold the ISYA.

Cultural tours and leisure: Cultural tours and leisure were also evaluated as good. As one could expect, the closing dinner at Marco's received the highest score.

The future: Students had an overall positive impression from this ISYA, from which they benefitted significantly. They specifically found that it helped them developing an international network, and gave them a broader view on the research done in astronomy, thus encouraging them to strengthen their research aspirations in astronomy.

Synthesis of individual comments:

Comments on the lectures:

- Prof Roy Martins explained cosmological terms in easier ways.
- There were very interesting material in most of the lectures. It might have been useful to have short presentation on reading material hand-in on the observational project before going up to Sutherland.
- For NASSP students some of the exercises/lectures were redundant so it might have been good to provide higher level exercises for those who are/were in NASSP.
- It would have liked more time for data reduction and advanced programming. The level of the lectures were too low for people who already had some astronomy experience.
- My interest is the study of A9N and the ISYA actually provided me with insights that I will use immediately in my work.
- Only getting a final version on the day of arrival was a bit frustrating. Dates listed on website (second announcement, issue of program, etc) did not match the dates when these things occurred.
- The lecturers tended to stick together – think it would be nice if they socialised more with the students during meals and coffee breaks.

Comments on observation training:

- Observing and data reductions was the best part of ISYA2012. I feel I have learned a lot and have gained a lot of skills.
- It would have been nice to have more advanced courses in data reduction.
- The principle of data reduction should be well prepared so that the hosting students should not dominate the process.

- For me the most useful part of the ISYA lies in the opportunity to have met & interacted with participants from all across Africa and also lecturers and tutors from around the world, plus the experience of Capetown/Sutherland, SA.
- I already had a strong background in Astronomy, but knew little to nothing about data reduction & observing. It was my first time observing and it was amazing.
- IRAF wasn't well taught. Use of a projector to take students step by step through the reduction process is recommended.

Comments on student presentations (individual and in group):

- I felt that some of the individual presentations were interesting but became too technical sometimes, making them less useful. I think it would have been better to have one session when everyone spoke – designated a time in the program. People should have volunteered before the school started and have the presentation ready.
  (comment by JP: while this is a good idea, communication with the students went with bits and pieces. Often their access to the internet was limited, or didn't work. Hence, such preparation would be problematic.)
- It should be agreed that to have a common presentation format, so that it is easy to identify which group did well in observation, data reduction, analysis and interpretation, etc
  Some of the project supervisors were not present when their projects were presented.
- The pressure of the preparation and presentation gave me a glimpse into the thought processes that go into a presentation.

Comments on accommodation:

- The hostel had water problems
- The accommodation should have been well thought about. It should have been visited before booking it for everyone. Generally we were very unhappy with the ' trainview' lodge with their cockroach infestation as well as spiders on beds.

Not pleasant being woken up by trains early every morning. Roaches in the bathrooms also not wonderful. Staff very friendly, but I would never recommend the place to anyone. (*comment by JP: the comment above is in contradiction with the overall satisfaction expressed in the query statistics*)

- The catering for vegetarians at Sutherland was somewhat inadequate.
- The lecture room at Cape Town was too hot, which made it hard to concentrate. Water should be provided to keep participants refreshed. At Sutherland the lecture room was a bit too small. (several similar comments on the two rooms)
- The accommodation at Sutherland in general wasn't good. The lack of privacy in bathrooms and sharing with the boys was the worst. Thank you for arranging for the girls to stay at SAAO hostel. In the future please consider separate bathrooms.(*comment by JP: separate bathrooms and toilets were foreseen, but the school director took an extra group of young boys in, causing an unforeseen situation requiring immediate action*) It would have been much nicer if the group had stayed in the same place at Sutherland and had not been split. The Sutherland accommodation was inadequate (bad showers, toilets, hot water, electricity)
- Changing the learning sites from UCT, SAAO and later to Sutherland was very good.

Comments on the future:

- I will be an ambassador for Astronomy science in my country.
- Brian Warner's talk was too long (interesting but lengthy). Thank you for the excursion to Cape Point on February 12, even saw other places I normally would have skipped. I enjoyed it very much.
- I definitely got clues on where to go and what research topics to focus on thanks to the talks and discussions, with lecturers

and other students during ISYA. And this was one of the reasons I came for.
- It would have been better to get some European/US (or any developed countries) students from the US to South Africa to collaborate with. It is good to help and enhance other African fellows, but if a couple of outside Africa were brought in, the collaboration created would have been more widespread and our exposure would have been better.

Overall comments:

- I felt that the ISYA was beneficial for me to attend as it opened my eyes to the different fields available and has given things to think about regarding my career plans.
- The financial support to participants from across Africa was marvellous and most appreciated.
- I propose that future ISYAs should focus on including more students from less astronomically developed countries.
- The ISYA 2012 was a great success! I picked up a lot of observational skills that will be necessary in my research in astrophysics in the future.
- May the future ISYA schools be even more successful and ongoing. You're doing great work, thank you.
- I loved the people at the school and I feel that I did gain from attending. The organisation was excellent except for the Sutherland accommodation. Overall I enjoyed it and I feel like it was a very good and well balanced school.
- It was very informative to have to do group presentations with people with a different background and different strengths. I wish there had been a lecture on group dynamics to mentally prepare us for working together.
- There were times when I felt rushed (particularly during the data reduction) and would have liked more time to fully understand what was being done. I did enjoy attending ISYA & would recommend it to other students.

9. Conclusions

ISYA 2012 was focused on observations and data reduction. To this end, quite some telescope time was given to the ISYA by the SAAO on different telescopes and detectors. The approach required a large amount of work to prepare it: computers with IRAF, Linux, finding tutors, and preparing them for the guidance to the students, two different sites (Cape Town and Sutherland), etc.

The offered infrastructure and IT environment was excellent, the accommodation and meals were certainly up to the ISYA standards (there is always room for improvement), and the daily organization was smooth and well done.

The organizers, lecturers, and tutors had to deal with a large background spectrum of participants, from students well acquainted with observing and data reduction, to total novices.

The students gave useful feedback, which will be taken into account in the organization of the future ISYAs.

Taking all the above into account, I consider ISYA 2012 as an excellent event, and I thank all those who contributed to its success.

Jean-Pierre De Greve
23 March 2012

ISYA 2012 program

Date: February 5 - 26, 2012 Venue: SAAO, UCT, Sutherland
Number of delegates: approx. 45 including lecturers All SAAO lectures are in the SAAO Auditorium. All UCT lectures are in the RW James C lecture room
Transport between Riverview Lodge / UCT / SAAO with a dedicated Jammie Shuttle.

Programme 5- 26, February 2012, Cape Town – ISYA

Day Weekday	**Duration**	**Item**
5.2. ***Sunday***	All day	Arrival
[SAAO]	19.00 – 21:00	**Welcome reception, braai**, at SAAO auditorium, information, registration, etc. ***LOC***
6.2. ***Monday*** *[UCT]*	9.00 – 9:30	**Official opening of ISYA 2012**, with ISYA background. **Prof. Anton Le Roex** (UCT, Dean of Science)**, Prof. Michele Gerbaldi** (IAP & IAU), **Prof. Patricia Whitelock** (SAAO, director)
	9.30 – 10.30	Lecture 1: **Amanda Gulbis** - ***Solar System I***
	10.30 – 11.00	Coffee break
	11.00 – 12.30	Lecture 2: **Michele Gerbaldi** - ***Fundamental Stellar Properties I***
	12.30 - 14.00	Transfer to SAAO + Lunch
[SAAO]	14.00 – 14.30	Students introduce themselves
	14.30 – 15.30	Lecture 3: **Steve Crawford** - ***Introduction to Data Reduction***
	15.30 – 16.00	Coffee break
	16.00 – 17.00	Lecture 4: **Steve Crawford** - ***Observational Methods***
	17.00 – 18.30	Practical session 1**: Steve Crawford, Sudhanshu Barway + tutors** – *Introduction to IRAF, FITS files, start of data reduction, etc.*
	19.00 –	Dinner
7.2. ***Tuesday***	9.00 – 10.30	Lecture 5: **Amanda Gulbis** - ***Solar System II***
[UCT]	10.30 – 11.00	Coffee break
	11.00 – 12.30	Lecture 6: **Michele Gerbaldi** - ***Fundamental Stellar Properties II***
	12.30 - 14.00	Transfer to SAAO + Lunch
[SAAO]	14.00 – 14.30	Presentation of Observing Projects
	14.30 – 15.30	Practical session 2: **Steve Crawford, Sudhanshu Barway + tutors** - *Imaging and photometry*
	15.30 – 16.00	Coffee break
	16.00 – 18.30	Practical session 2: **Steve Crawford, Sudhanshu Barway + tutors** - *Imaging and photometry*

		continued
	18.30 – 19.30	Dinner
	19.30 –	Prof. **Brian Warner** - Guest evening lecture: ***Astronomical History in Cape Town***
8.2. ***Wednesday***	9.00 – 10.30	Lecture 7: **Kam-Ching Leung** – ***Binary research used for cosmology***
[UCT]	10.30 – 11.00	Coffee break
	11.00 – 12.30	Lecture 8: **David Gilbank** - ***Galaxy Evolution I***
	12.30 - 14.00	Transfer to SAAO + Lunch
[SAAO]	14.00 – 15.00	Lecture 9: **Kartik Sheth** – ***Quantifying the Assembly of Disk Galaxies on the Hubble Sequence***
	15.00 – 15.30	Coffee break
	15.30 – 16.30	Lecture 10: **Sudhansu Barway** – ***Introduction to Virtual Observatory***
	16.30 – 17.30	Practical session 3: **Sudhanshu Barway + tutors** – *Continuing VO basics*
	17.30 – 18.30	Practical session 3: **Kartik Sheth + tutors** - *Galaxy shape tutorial*
	19.00 –	Dinner
9.2. ***Thursday***	9.00 – 10.30	Lecture 11: **David Gilbank** - ***Galaxy Evolution II***
[UCT]	10.30 – 11.00	Coffee break
	11.00 – 12.30	Lecture 12: **Kartik Sheth** – ***Nearby Galaxies – Surveys, Stellar Structure and Star Formation***
	12.30 - 14.00	Transfer to SAAO + Lunch
[SAAO]	14.00 – 15.30	Practical session 4: **Steve Crawford, Sudhanshu Barway + tutors** - *Spectroscopy*
	15.30 – 16.00	Coffee break
	16.00 – 18.30	Practical session 4: **Steve Crawford, Sudhanshu Barway + tutors** - *Spectroscopy continued*
	19.00 –	**Picnic dinner at beach**
10.2. ***Friday***	9.00 – 10.30	Lecture 13: **Kam-Ching Leung** - ***Astrophysics of emission line stars I***
[UCT]	10.30 – 11.00	Coffee break
	11.00 – 12.30	Lecture 14: **Claude Carignan** – ***Dark Matter in galaxies***
	12.30 – 14.00	Transfer to SAAO + Lunch
[SAAO]	14.00 – 15.15	Lecture 15**: Kartik Sheth** - ***Gas, Dust and Star Formation - the Rise of the Radio Telescopes***
	15.15 – 15.45	Coffee break
	15.45 – 17.30	Lecture 16: **Christian Hettlage + Petri Vaisanen** – ***Preparing SALT proposals, and using SALT tools***
	18.00 –	**Dinner function together with NASSP Summer School**
11.2. ***Saturday***	9.00 – 10.30	Lecture 17**: Kartik Sheth***: Career development*
[SAAO]	10.30 – 11.00	Coffee break
	11.00 – 12.30	*Short talks by students on their own thesis projects*

	12.30 - 13.30	Lunch
	13.30 –	**Excursion**, half-day
	20.00 –	**SAAO Open Night** – those who are interested are more than welcome to join the bi-monthly telescope viewing and a public talk given by **Dr**. **Sarah Blyth** on MeerKAT and Evolution of galaxies.
12.2. ***Sunday***		**Excursion**, full-day
13.2. ***Monday***	9.00 – 10.30	Lecture 18: **Michel Dennefeld** - ***Spectroscopy I***
[SAAO]	10.30 – 11.00	Coffee
	11.00 – 12.30	Lecture 19: **Claude Carignan** – ***Fabry Perot observations***
	12.30 - 13.30	Lunch
	13.30 – 15.00	Practical session 5: **Christian Hettlage** - *Using SALT tools*
	15.00 – 15.30	Coffee break
	15.30 – 18.30	Practical session 6: **Sudhansu Barway** – ***Virtual Observatory – advanced (+ preparing for Sutherland projects if time)***
	19.00 –	Dinner
14.2. ***Tuesday***	11.00 –	**Drive up to Sutherland**
[SAAO]	16.00 –	Settle down at Hostel
[S. town]	19.00 – 22.00	Introduction and presentation of all projects
[Observ.]		

[In Sutherland: students sleep at the School Hostel, the lecturers at the Sutherland Hotel, or SAAO Hostel. All meals are together, however, provided by the Hostel kitchen but served at the Observatory. There will be transport from Sutherland to the Observatory, 15km away, for the 1pm lunch, and back down again to sleep, around 3---4am at the latest, depending on weather. The practical sessions continue in Sutherland, and will be geared towards the selected observational projects]

[Also – in case of bad weather there will be extra time during the week, though data reductions on back---up data continue in any case. There will be a selection of informal talks ready for that: CV writing. Publishing. Hot Topics in astronomy. Extremely Large Telescopes. More Student thesis talks. Etc.]

15.2. ***Wednesday***	13.00 – 14.00	Lunch
[S. observ]	14.00 – 15.00	Lecture 20: **Michel Dennefeld** – ***Spectroscopy II***
	15.00 – 16.00	Tour of the Sutherland observatory
	16.00 – 18.00	Project work in teams
	18.00 - 19.00	Dinner
	19.30 – 04.00	Observations and project work
	04.00 or earlier	Transport to Sutherland
16.2. ***Thursday***	13.00 – 14.00	Lunch
	14.00 – 15.30	Lecture 21: **Michel Dennefeld** – ***Telescopes and Instrumentation***
	15.30 – 18.00	Project work in teams

	18.00 - 19.00	Dinner
	19.30 – 04.00	Observations and project work
	04.00 or earlier	Transport to Sutherland
17.2. ***Friday***	13.00 – 14.00	Lunch
	14.00 – 15.00	Lecture 22: **Jean-Pierre De Greve** – ***Binary stars I***
	15.00 – 18.00	Project work in teams
	18.00 - 19.00	Dinner
	19.30 – 04.00	Observations and project work
	04.00 or earlier	Transport to Sutherland
18.2. ***Saturday***	13.00 – 14.00	Lunch
	14.00 – 15.30	Lecture 23: **Kam-Ching Leung** – ***Astrophysics of emission line stars II***
	15.30 – 18.00	Project work in teams
	18.00 - 19.00	Dinner
	19.30 – 04.00	Observations and project work
	04.00 or earlier	Transport to Sutherland
19.2. ***Sunday***	13.00 – 14.00	Lunch
	14.00 – 18.00	**Soccer and social with town team**
	18.00 - 19.00	Dinner
	19.30 – 04.00	Observations and project work
	04.00 or earlier	Transport to Sutherland
20.2. ***Monday***	13.00 – 14.00	Lunch
	14.00 – 15.00	Lecture 24: **Jean-Pierre De Greve** - ***Binary stars II***
	15.00 – 18.00	Project work in teams
	18.00 - 19.00	Dinner
	19.30 – 04.00	Observations and project work
	04.00 or earlier	Transport to Sutherland
21.2. ***Tuesday***	13.00 – 14.00	Lunch
	14.00 – 15.00	Lecture 25: **TBD** (or free)
	15.00 – 18.00	Project work in teams
	18.00 - 19.00	Dinner
	19.30 – 04.00	Observations and project work
	04.00 or earlier	Transport to Sutherland
22.2. ***Wednesday***	13.00 – 14.00	Lunch
	14.00 –	**Drive back to Cape Town**
	19.00 –	Dinner
23.2. ***Thursday***	10.00 – 11.00	Lecture 26: **Roy Maartens: -** ***Cosmology I***
[SAAO]	11.00 – 11.30	Coffee break
	11.30 – 13.00	Lecture 27: **Roy Maartens** – ***Cosmology II***
	13.00 - 14.00	Lunch
	14.00 – 15.30	Work on projects
	15.30 – 16.00	Break
	16.00 – 18.30	Work on projects
	19.00 –	Dinner

24.2. ***Friday***	9.00 – 10.30	**Student project presentations**
[SAAO]	10.30 – 11.00	Coffee break
	11.00 – 13.00	**Student project presentations**
	13.00 - 14.00	Lunch
	14.00 – 15.30	Lecture 28: **Patrick Woudt** - ***Astronomy in Africa***
	15.30 – 16.00	Break
	16.00 – 17.30	Panel, discussion: **lecturers, Kevin Govender, et al.***: Studying astronomy - astronomy as a profession – possibilities of fellowships etc for African students*
	19.00 –	**Gala dinner** – Marco's
25.2. ***Saturday***	9.00 – 10.30	**Outreach workshop**: **Kevin Govender**
[SAAO]	10.30 – 11.00	Coffee
	11.00 – 12.30	**Outreach workshop**: **Kevin Govender**
	12.30 - 13.30	Lunch
	13.30 – 15.00	**End of school** - Evaluations and official closing
		Free
	18.00 – Dinner	

26.2. ***Sunday*** **Flying out**

ISYA 2012 -PARTICIPANTS

No	Surname	First name(s)	Gender	Institution	Country of Institution	Email
1	Ashebir	Simachew Endale	male	Wolaita Sodo University	Ethiopia	simachewendale@yahoo.com
2	CHERKOS	ALEMAYEHU MENGESHA	male	ETHIOPIAN SPACE SCIENCE SOCIETY	Ethiopia	alexye9@yahoo.com
3	Gebeyehu	Tamirat	male	Wolaita Sodo University	Ethiopia	ttg125@yahoo.com
4	Kebede	Fasil	male	Wollo University	Ethiopia	fasgibe@yahoo.com
5	Kifle	Mekuanint	male	Addis Ababa University	Ethiopia	mekunet@gmail.com
6	KIMANI	NAFTALI KAGIRI	male	Kenyatta University	Kenya	naftykagz@gmail.com
7	KIRUI	Hillary Wilfred	male	TELKOM KENYA	Kenya	kiruiw@gmail.com
8	Elejere	Ugochukwu	male	University of Nigeria, Nsukka	Nigeria	ugoelejere@gmail.com
9	EYA	Innocent	male	University of Nigeria, Nsukka.	Nigeria	innocent.eya@unn.edu.ng
10	Okany	Chioma Franklynda	female	University of Nigeria Nsukka	Nigeria	chioma.okany@yahoo.com
11	Okonkwo	Chinelo Perpetua	female	University of Nigeria	Nigeria	peepyyy@yahoo.com
12	Onah	Franklin	male	University of Nigeria, Nsukka.	Nigeria	neofrank@scientist.com
13	Uba	Jude Ikemefuna	male	Nnamdi Azikiwe University	Nigeria	judebasil_ikem@yahoo.com
14	Breytenbach	Johannes Benjamin	male	University of Cape Town	South Africa	johbenbrey@gmail.com
15	catala	laure	female	UCT	South Africa	laurecatala@gmail.com
16	Coppejans	Rocco	male	South African Astronomical Observatory	South Africa	rocco.coppejans@gmail.com
17	DAVIDS	Isak Delberth	male	North-West University	South Africa	isak.davids@gmail.com
18	Kasai	Eli	male	UCT / SAAO	South Africa	kunwijik@gmail.com
19	Madhanpall	Nikhita	female	University of the Western Cape	South Africa	n_madhanpall@yahoo.com
20	Makhathini	Sphesihle	male	University of KwaZulu-Natal	South Africa	smakhathini@yahoo.com
21	Ramphul	Rajin Anand	male	UCT/ SAAO	South Africa	rajin250@yahoo.com
22	Skelton	Patricia Leigh	female	University of South Africa	South Africa	skeltpl@unisa.ac.za

23	Tailor	Asha	female	University of the Witwatersrand	South Africa	ashatailor@gmail.com
24	Viljoen	Danièl Natasha	female	North-West University	South Africa	20569513@nwu.ac.za
25	Wilson	Susan	female	North West University	South Africa	sWilson072@gmail.com
26	MGUDA	ZOLILE	male	SAAO / UCT	South Africa	zolilemguda@yahoo.co.uk
27	Ally	Said	male	The Open University of Tanzania (OUT)	Tanzania	saidkasaby@yahoo.com
28	CHRISTOPHER	ELIAH	male	THE OPEN UNIVERSITY OF TANZANIA	Tanzania	ecmbmk@yahoo.co.uk
29	Owayesu	Flavia	female	Mbarara University	Uganda	owayesuflavia@gmail.com
30	TUMWINE	CHAKA JOSEPH	male	MBARARA UNIVERSITY	Uganda	tmwchaka@yahoo.co.uk
31	SIMPEMBA	PROSPERY C.	male	COPPERBELT UNIVERSITY	Zambia	pcs200800@gmail.com

Annex 2.

List of lecturers ISYA 2012:

Amanda Gulbis, SAAO, Cape Town, South Africa
Michele Gerbaldi, IAP, Paris, France
Steve Crawford, SAAO, Cape Town, South Africa
Brian Warner, UCT, Cape Town, South Africa
Kam-Ching Leung, University of Nebraska, USA
David Gilbank, SAAO, Cape Town, South Africa
Kartik Sheth, NRAO, USA
Sudhansu Barway, SAAO, Cape Town, South Africa
Claude Carignan, UCT, Cape Town, South Africa and University of Montreal, Canada
Christian Hettlage, SAAO, Cape Town, South Africa
Michel Dennefeld, IAP, Paris, France
Jean-Pierre De Greve, VUB, Brussels, Belgium (organizer, Chair ISYA)
Roy Maartens, University of Western Cape, Cape Town, South Africa
Patrick Woudt, UCT, Cape Town, South Africa (co-organizer)
Petri Vaisanen, SAAO/SALT, Cape Town, South Africa (co-organizer, director observation projects)
Kevin Govender,Director OAD, Cape Town, South Africa

List of tutors ISYA 2012:

Rocco Coppejans (also ISYA student), MSc student at UCT/SAAO, for the 0.75-m telescope
Tom Mutabazi, PhD student at UCT, for the IRSF telescope
Andry Rajoelimanana , PhD student at UCT/SAAO, for the 1.9-m telescope
Zara Randriamanakoto, PhD student at UCT/SAAO, for the IRSF telescope
Abiy Tekola, post-doc at SAAO, for the 1.9-m telescop
Hannah Worters, post-doc at SAAO, for the 1.0-m telescope

Student observing project - 1 – Vanessa McBride / Patrick Woudt

Title and lecturer: Optical light curve of Cen X-3

Telescope and Instrument: 0.75m. SHOC.

Aim: Cen X-3 is a massive X-ray binary with a neutron star accreting from a supergiant O6II companion via Roche lobe overflow. It shows nice eclipses in the X-rays. Idea is to follow the light curve for a few days, observe the characteristic sinusoidal profile, compare to X-ray curve, and interpret any time lags. Learn to use the telescope, basic ccd reductions, photometry.

1st option:

Rocco Coppejans
Mekuanint Kifle
Ugochukhu Christian Elejere
Saidy Ally Mohamedy
Obs: **Rocco**
Reductions: Rocco, Steve
Analysis: Rocco, Steve

Student observing project - 2A – Claude Carignan

Title and lecturer: Stellar Photometry of standard stars for Brown Dwarf calibration

Telescope and Instrument: 0.75-m. SHOC.

Aim: Obtain BVRI photometry of several standard stars. These observations are a part of a PhD project to study Brown Dwarfs. Learn to use the telescope, a CCD camera, basic CCD frame reductions, and photometry using the SExtractor package.

1st option:

Franklin Onah
Fasil Tesema
Isak Davids
Obs: Rocco, **Steve**, Hannes
Reductions: Steve
Analysis: ?? + Petri

Student observing project - 2B – Claude Carignan

Title and lecturer: Stellar Photometry of standard stars for Brown Dwarf calibration

Telescope and Instrument: IRSF - SIRIUS

Aim: Obtain JHK photometry of several standard stars. These observations are a part of a PhD project to study Brown Dwarfs. Learn to use the telescope, a CCD camera, basic NIR reductions, and photometry using the SExtractor package.

1st option:

Tamirat Gebeyehu
Hillary Kirui
Eli Kasai
Chinelo Okonkwo P.
Obs: Zara/Tom and **Michele**
Reductions: Zara/Tom and Petri
Analysis: Michele

Student observing project - 3 – Kartik Sheth

Title and lecturer: Measuring the star-formation rate of nearby galaxies

Telescope and Instrument: 1.0m. STE4

Aim: Obtain H-alpha and continuum images of a nearby spiral galaxy M83, locate star forming regions in the disk, calibrate and measure fluxes in these, and derive star formation rates. Learn to use the telescope, align images, scale to get fluxes in emission lines only, aperture photometry.
Possible extension of the project: Use IRSF to obtain near-infrared imaging of the same target to obtain bulge and disk component photometry.

1st option:

Innocent Eya
Alemayehu Mengesha
Simachew Endale
Naftali Kagiri
Obs: **Hannah**
Data Red: Hannah
Analysis: Hannah, Petri

Student observing project - 4 – Michel Dennefeld

Title and lecturer: Physics of gaseous Nebulae in the Galaxy and Magellanic Clouds

Telescope and Instrument: 1.9m. Grating spectrograph

Aim: Study the variety of Nebulae (HII regions, Planetary Nebulae, Supernova remnants) to classify them based on line ratios etc. Learn to use the telescope, reduce and calibrate spectroscopic data, fit and measure emission lines. Some previously unclassified Nebulae in the SMC/LMC are among the targets. Extension of the project: Use narrow-band imaging on the 1.0m to obtain ionization structure maps of the same targets.

1st option:

Patricia Skelton
Eliah Christopher
Prospery Simpemba
Laure Catala
Flavia Owayesy
Obs: Andry, **Michel**
Reductions: Andry/Abiy
Analysis: Michel

Student observing project - 5 – Michel Dennefeld

Title and lecturer: Physics of active galactic nuclei (AGN)

Telescope and Instrument: 1.9m. Grating spectrograph

Aim: Spectroscopy of a variety of AGN (Seyfert1, Seyfert2, BLLac, QSOs) and star forming galaxies. Learn how to use the telescope, reduce and calibrate spectroscopic data, fit and measure emission lines, learn to distinguish different classes from each other and from normal galaxies from their spectra, and finally extract physics from the data (conditions in their narrow and broad line regions, star-formation rates etc.)

1st option:

Susan Wilson
Nikhita Madhanpall
Zolile Mguda
Tumwine Chaka
Obs: Abiy/Andry, **Michel**

Reductions: Andry/Abiy
Analysis: Michel

Student observing project - 6 – Petri Vaisanen

Title and lecturer: Physics of interacting starburst galaxies

Telescope and Instrument: 1.9m. Grating spectrograph.

Aim: Spectroscopy of a variety of several nearby starburst and interacting galaxies. Learn how to use the telescope, reduce and calibrate 2-dimensional spectroscopic data, fit and measure emission lines. Analyze data to derive star-formation rates, extinctions, metallicity estimates, in different regions of the interacting systems. Targets are part of a on-going survey done with SALT and La Palma telescopes.
Possible extension of the project: Use narrow-band imaging on the 1.0m to obtain images of the host galaxy properties, nucleus and spiral structure etc.

1st option:

Ikem J. Uba
Danièl Viljoen
Rajin Ramphul
Sphesihle Makhatini
Obs: Abiy/Andry
Reductions: **Abiy,** Petri
Analysis: Abiy, Petri

Student observing project - 7 – Sudhanshu Barway and David Gilbank + Petri Vaisanen

Title and lecturer: Low surface brightness tidal features around nearby Lenticular galaxies and interacting galaxies

Telescope and Instrument: 1.4m IRSF. SIRIUS.

Aim: Take deep (several hours) imaging around nearby S0 galaxies to identify faint surface brightness features, e.g. tidal tails, to study the growth and merger history of these systems. A pilot project to assess feasibility of using IRSF for this purpose. Learn how to use the telescope, plan and execute infrared observations and data reductions and calibrations, and surface and aperture photometry.
Merged from Project 8: similar deep observations of more distant interacting galaxies

1st option:

Chioma Okany
Asha Taylor
Hannes Breytenbach
Obs: **Zara/Tom**
Reductions: Zara/Tom, Petri
Analysis: Zara/Tom, Petri

34th ISYA Evaluation Form - Results

General

		5	4	3	2	1	
The website told me all I needed to know	Strongly agree	19	8	4	0	0	Disagree
The application form was easy to fill in	Strongly agree	26	4	1	0	0	Disagree
Applications were efficiently handled	Strongly agree	25	4	2	0	0	Disagree

Lectures

		5	4	3	2	1	
The lectures were the most useful part of the ISYA	Strongly agree	8	3	9	4	0	Disagree
The time spent on the lectures was too long	Strongly agree	2	5	4	1	2	Disagree
Or the time spent on the lectures was too short	Strongly agree	0	1	1	0	0	Disagree
Or the time spent on the lectures was just right	Strongly agree	9	10	0	0	0	Disagree
The lectures were at too high a level	Strongly agree	2	3	1	1	0	Disagree
Or the lectures were at too low a level	Strongly agree	0	2	0	1	1	Disagree
Or the lectures were just right	Strongly agree	16	8	2	0	0	Disagree
The lectures were well presented	Strongly agree	16	12	2	0	0	Disagree
The lecturers responded well to questions	Strongly agree	17	12	0	0	1	Disagree
I found it easy to get on with the lecturers	Strongly agree	15	11	2	0	0	Disagree
The lecture room at Cape Town was comfortable	Strongly agree	20	8	0	2	1	Disagree
The lecture room at Sutherland was comfortable	Strongly agree	11	8	5	5	0	Disagree

Observation training

		5	4	3	2	1	
The observation projects were the most useful part of the ISYA	Strongly agree	19	6	4		1	Disagree
The time spent on observation was too long	Strongly agree	1	1	1	2	2	Disagree
Or the time spent on observations was too short	Strongly agree	4	6	3	3		Disagree
Or the time spent on observations was just right	Strongly agree	10	7	2	3	1	Disagree
The lectures did not prepare me adequately for the observations	Strongly agree	3	4	9	5	7	Disagree
It was ok just to learn on observing technique	Strongly agree	11	7	7	1	3	Disagree
The computing facilities were good	Strongly agree	23	4	2			Disagree
The help I got with my project was adequate	Strongly agree	12	9	6	1		Disagree
I found the tutors helpful and easy to get on with	Strongly agree	21	6	3			Disagree
The balance between the observing/data reduction part, and lecture part was allright	Strongly agree	10	15	3	2	1	Disagree

Individual and project presentation exercise

		5	4	3	2	1	
The individual student presentations were the most useful part of the school	Strongly agree	5	4	13	4	5	Disagree
The time spent on this was too long	Strongly agree	1		2	2	2	Disagree
Or the time spent on this was too short	Strongly agree	1	2	2	3		Disagree
Or the time spent on this was just right	Strongly agree	15	8	2	1		Disagree
This exercise was well organized	Strongly agree	18	7	4		2	Disagree
This exercise was interesting	Strongly agree	18	8	4			Disagree
The project presentations were very useful	Strongly agree	17	11	1	2		Disagree
The project presentations were well presented	Strongly agree	10	12	8	1		Disagree

Accommodation:

		5	**4**	**3**	**2**	**1**	
The airport transport was efficiently done	Strongly agree	19	1	3	1		Disagree
The rooms at Cape town were good	Strongly agree	7	7	7	2	1	Disagree
The breakfast at Cape town was good	Strongly agree	11	7	2	3	1	Disagree
The meals at Cape Town were good	Strongly agree	21	8	2			Disagree
The rooms at Sutherland were good	Strongly agree	8	4	13	2	3	Disagree
The breakfast/lunch at Sutherland was good	Strongly agree	10	13	5	3		Disagree
The evening meal at Sutherland was good	Strongly agree	11	12	4	4		Disagree
The evening snack at Sutherland was good	Strongly agree	15	11	2	3	1	Disagree
The organizational support was good	Strongly agree	16	12	2			Disagree
Generally, the ISYA environment was good	Strongly agree	23	7	1			Disagree
Cape Town & Sutherland were good places to hold this ISYA	Strongly agree	25	5	1			Disagree

Cultural tours and leisure:

		5	**4**	**3**	**2**	**1**	
The leisure possibilities after the lectures were good	Strongly agree	12	8	2	3	2	Disagree
The Saturday February 11 excursion was good	Strongly agree	16	5	2			Disagree
The Sunday February 12 excursion was good	Strongly agree	20	4	1	1		Disagree
The general talk by Brian Warner was good	Strongly agree	14	9	4	1		Disagree
The Sunday afternoon 18 February was good (soccer and braai)	Strongly agree	18	9	3			Disagree
The welcome reception with braai on February 5 was fine	Strongly agree	18	9		2		Disagree
The closing dinner at Marco's (24 February) was fine	Strongly agree	23	3	2			Disagree
Sport facilities were good	Strongly agree	11	7	7	2		Disagree
Generally, this part of the ISYA was good	Strongly agree	17	10	1			Disagree

The future

		5	**4**	**3**	**2**	**1**	
I developed an international network as a result of this ISYA	Strongly agree	17	6	5			Disagree
The ISYA helped me to better understand my actual research interests	Strongly agree	18	4	6			Disagree
The ISYA encouraged me to strengthen my research in astronomy	Strongly agree	18	7	3			Disagree
Through the ISYA I acquired a broader view on the research done in astronomy	Strongly agree	20	4	3	1		Disagree
I have benefited significantly from attending this ISYA	Strongly agree	21	4	2	1		Disagree