

South Africa Queries SKA's Size and "Affordability"

After hosting a big international meeting of radio astronomers in February (*AS*, April 2009, p 13), the Director of the South African bid to host the giant Square Kilometre Array has acknowledged to *Australasian Science* that plans for nearby countries to host outstations of the 2000–3000 antennas required to give the instrument its requisite sensitivity and resolution might need to be "flexible".

Australasian Science understands that such a possible shift was not raised in the meeting and certainly wasn't hinted in the public statement issued in the name of the meeting, which concluded with a generally optimistic (but contestable) view that the global financial crisis won't affect funding for the enormous instrument costing ~A\$3 billion.

One undercurrent, never stated openly in scientifically polite circles, has emerged as a result of the bloody coup in Madagascar, one of the outstation countries nominated by South Africa. Another proposed outstation country, Kenya, had already had a violent change of government in December.

Australasian Science asked South Africa's SKA Director, Dr Bernie Fanaroff, to explain how they would handle the evident political instability in the region, and noted that Zimbabwe, South Africa's immediate northern neighbour, was not listed as an outstation host.

"We hope that the situation in Madagascar will normalise sooner rather than later," Fanaroff responded. "The Madagascan scientists and students have been particularly enthusiastic about the project.

"The configuration beyond a few hundred kilometres allows for considerable flexibility. We believe that creating a network of dishes in many African countries would greatly enhance the scope for VLBI [Very Long Baseline Interferometry], but that will of course depend on affordability. So it is still possible to

involve countries which are currently not in the list of partners. There has been discussion of that, because other countries have expressed interest.

"You should perhaps also ask about the affordability of extending the SKA beyond (say) several hundred kilometres."

Fanaroff did not respond about Zimbabwe, but this deeply troubled state is obviously in no position to share any resources in such a massive venture.

Fanaroff's statement raised the possibility of a radically changed specification for the array in order to accommodate a reduction in scale and variation in distri-

resolution science impossible. The sensitivity is proportional to the collecting area, the system temperature of the receivers and various other factors. The sensitivity would not change with a reduction in overall scale of the array provided the collecting area is not reduced or system temperature increased etc.

"This is not being discussed in the SKA Collaboration. It will most naturally come up when we have completed the costing of the SKA design at the end of PrepSKA."

South Africa has therefore been told to get on with meeting the detailed spec-



An artist's impression of how the core of the SKA would look with a multitude of Australia's ASKAP pathfinder telescopes in place at the proposed Murchison site in Western Australia.

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bution of antennas, and that this might be more "affordable". Implicitly, this could be desirable if the global economic crisis eats into the agreed funding timetable (site decision 2011–12, construction funding 2012–13).

As Fanaroff invited, his statement was referred for comment to the two most relevant authorities – the Director of the SKA Program Development Office in England, Prof Richard Schilizzi, and South Africa's competitor for siting the SKA, Australia, led by SKA Director, Prof Brian Boyle.

Schilizzi responded: "Reducing the scale of the array to several hundred kilometres will reduce the achievable angular resolution proportionately (i.e. by a factor of 10). That would make the high angular

ifications for the array that had been devised, revised and agreed over several years by the multinational collaboration, and to hold off raising such significant changes until the two bids are assessed independently.

The South African and Australian governments had announced in February an agreement to cooperate in technical development of the SKA, but it appears this had not been invoked by South Africa in Fanaroff's floating of a significant change in planning. Boyle confirmed to *Australasian Science*: "Australia continues to develop a compelling case for hosting the SKA on the basis of the specifications and criteria as originally outlined".

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