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My first souvenirs of SPARC

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LATMOS IPSL

My involvement with SPARC started much before the project even had a name, at least a decade before. To create a new project requires many years of efforts before it can emerge from a dream to reality! The issue of the ozone depletion had obviously raised an enormous interest in our community since the mid 70's, and even more after the discovery of the ozone hole in 1984. The community involved was formed by scientists from above and below the ozone region, either working in the mesosphere or in the stratosphere. Part of this community had been involved in the Middle Atmospheric Programme (MAP). What some of us felt strongly was to demonstrate to the climate community the existence of the numerous interactions between the stratosphere and the troposphere and the role that stratospheric processes could play in climate, beside the immediate consequences of the ozone depletion.

The main question was therefore to have the stratosphere included into one of the two main climate programmes which existed at the end of the 80s. The World Climate Research Programme (WCRP) had been established to investigate the physical processes important in the climate system and the International Geosphere-Biosphere Programme (IGBP) was created to study the interactive physical, chemical, and biological processes that regulate the Earth System. But stratospheric processes were not mentioned in either of them.

Finding a home for SPARC science

As I was a member of the first scientific committee of the IGBP, which was established in 1986, I was well placed to see the importance of including the stratosphere into this new and long-term programme. Tropospheric chemistry was considered to be part of IGBP through International Global Atmospheric Chemistry (IGAC) and the idea to include the stratosphere was seen as a possibility. I had put forward a project called "Stratospheric Change and the Penetration of UV-B Radiation", considering ozone depletion and its possible effect on the biosphere, which led to a first proposal

in 1989. But it did not go through, even with the strong support of Paul Crutzen who was also a member of the IGBP committee.

It was only then that I thought of having it included into WCRP which had been established in 1980 to investigate the physical processes important in the climate system and was essentially run by physicists. But accepting a stratospheric project was considered as a threat to the "pure scientific essence" of the whole enterprise because of the chemistry which will disturb that pure world of physics. And it's only after a lot of discussions that SPARC was accepted as a WCRP Project in 1992. I have to say that I had to convince the Director of the programme who at that time happened to be a close colleague of mine, Pierre Morel. But Pierre only respected hard science, which for him meant mathematics and physics. But I succeeded to convince him and the successive Directors of WCRP said they never regretted this decision. The proof is that SPARC is still after 30 years one of WCRP core projects. Today where inter-disciplinarity is encouraged in all global change issues, it is difficult to imagine that the introduction of chemistry in the fortress of physics of WCRP was such a revolution!

A group of scientists led by Marvin Geller and myself who had been working together in the MAP Programme met for the first time in Carqueiranne in summer 1992 to define what SPARC will be. I remember the enthusiasm that SPARC raised when it was at last accepted. The first Scientific Steering Group (SSG)



Figure 1: Members of the SPARC SSG, SPARC Office and attendees in Corpus Christi, Cambridge, UK, September 1993. From left to right: I. Isaksen, J. Pyle, J. Gille, G. Reid, J. Kaye, S. Chandra, R. Newson, M. Geller, M.-C Torre, J. Malhman, D. Ehhalt, V. Khatatov, E.D.Fabo, M.-L. Chanin, P. Simon, Y. Matsuno, H. Tanaka, S. Solomon. Reprint from SPARC, 1993b.

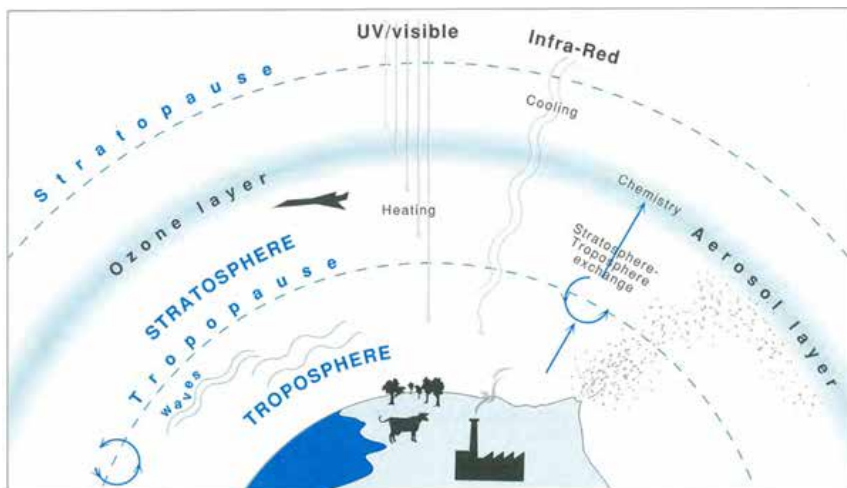


Figure 2: Schematic showing processes affecting the troposphere - stratosphere system. Reprint SPARC, 1993a.

members are shown in Figure 1, all wearing a SPARC T-shirt at the first SSG meeting which was held in Corpus Christi College in Cambridge in 1993!

Defining SPARC science and topics

Since the beginning, the two co-chairs, Marvin Geller and myself as well as the SSG members, were very careful not to include topics in SPARC which were already well taken care of by other existing programmes. That meant essentially that we established strong links and good relationships with the national or international “ozone depletion” programmes, as for example the Ozone Commission of the International Association of Meteorology and Atmospheric Sciences (IAMAS), but without interfering with them. This approach worked very well, thanks to a few key people, who recognised that SPARC was not a threat but a complement to their activity. Thus, SPARC focused on understanding stratospheric changes, which are caused either by human activities or by natural variations and how such changes can affect climate.

It would be ambitious to try to summarize here 30 years of SPARC. The number of activities and of scientists involved increased very fast and, as a good example, one can look at the size and content of the SPARC newsletters.

I would like to recall the first initiatives conducted by the SPARC SSG, such as the assessments of our current knowledge of key quantities (temperature, ozone, water vapour and aerosols) and to establish a climatology of the stratosphere. They have been essential to place SPARC in the position to play an important role in the successive World Meteorological Organization – United Nations Environment Programme (WMO-UNEP) ozone Assessments and later in the Inter-

governmental Panel on Climate Change (IPCC) Assessments.

It’s a pleasure for me to see that some of them are still among the regular work of the actual SPARC project as the assessment of trends in temperature, ozone, water vapor, etc. We also picked up topics which later became hot subjects: such as “solar forcing of climate” a topic which was considered as sulphurous at the time, and which has become a real subject of research for the community. The role of the Arctic Oscillation and the North Atlantic

Oscillation in the dynamical coupling of the stratosphere and troposphere has shown to be important for the predictability of changes in the troposphere. I should not forget also the role played by gravity waves in the coupling between the different layers of the atmosphere. I also remember the strong pressure we put on IGBP to cooperate on chemistry-climate interactions between SPARC and IGAC.

When remembering the names of all the scientists who gave their time and talents to make SPARC successful, I feel very grateful to all of them. SPARC owes them its successes and its excellent reputation in the WCRP community and I wish to thank them. As Director of the Office for the first 12 years, I don’t remember to have experimented refusal of participation from anyone, whether to write articles or organise meetings for SPARC, even from the busiest ones. The most important character of all this period is the wonderful feeling of forming a large family enjoying to work together. This was the best reward that one can have when devoting one’s energy to the success of a project. Legend of the second one:

SPARC, in the first newsletter was presented as in the schematic shown in Figure 2, focused on understanding stratospheric changes which are caused by human activities and natural variations and how such changes can affect the climate and as a consequence the biosphere.

References

- SPARC, 1993a: SPARC Newsletter No. 1, July 1993, 8 pp., available at <http://www.sparc-climate.org/publications/newsletter>.
- SPARC, 1993b: SPARC Newsletter No. 2, December 1993, 8 pp., available at <http://www.sparc-climate.org/publications/newsletter>.

What do former co-chairs have to say about SPARC?

Marvin Geller (co-chair 1992 – 2002)

“When SPARC began, we anticipated that excellent science would be achieved, but perhaps our most gratifying outcome was the creation of a community of scientists who valued their personal and scientific relationships. What has resulted is a precious SPARC community that ranges from older folks like me to the younger scientists who will inherit the future.”

Alan O’Neill (co-chair 2001 – 2006)

“What better reason for having a SPARC than this: that it got its community to do very important collaborative science that otherwise would not have been done? And what greater privilege for a former co-chair like me than to bask in its reflected glory!”

Greg Bodeker (co-chair 2012 – 2014)

“SPARC, as a major cog in the international scientific research machine, has created global collaborations whose true value will likely not be fully realised for decades to come. It has facilitated research and coordination essential to addressing one of the biggest challenges faced by our planet to date. My involvement in SPARC, and the international collaborations supported by it, has certainly been a highlight of my own research career. I wish SPARC all the best for the next 30 years.”

Ted Shepherd (co-chair 2007 – 2012)

“I measure the success of SPARC by two things: first, SPARC has always kept its eye on the ball and focused on where it can make a difference; and second, pretty much everybody working in the SPARC area of science feels that SPARC is their home, so it is a true community.”

Neil Harris
(co-chair 2014 – 2021)

“Doing cutting edge science in a friendly community.”

A.R. Ravishankara (co-chair 2003 – 2006)

“SPARC, since its inception led by two competent founding scientists, has been a forward-looking organization of scientists for scientists to advance our science and address societal issues. It has provided invaluable studies, workshops that produced seminal paradigm-shifting papers, and assessments that have benefited our science and society. Even though SPARC started with an emphasis on atmospheric dynamics, it quickly embraced and enhanced chemistry within the organization. I was the first “chemist” to co-chair SPARC! Personally, SPARC allowed me to grow scientifically and interact with many exceptional scientists. Being a co-Chair with Alan O’Neill was my privilege. SPARC workshops and the Assemblies were, and continue to be, venues for honing our science and paving the way for discoveries and enabling the synthesis of information.”