

Chapter 6

Discussion

From the preceding chapters, it can be seen that our group undertakes a large number of subprojects in parallel (32 during this three-year period), some of which quickly bear fruit in terms of international publications, some requiring a longer time before they are ready for publication, and some that never lead to an international publication. Actually, with the exception of outreach, the workshops, and detector maintenance, each subproject that we take on is, at the outset, potentially important enough for an international publication (or at the very least an international conference presentation), but some do not work out or do not yield sufficiently interesting results.

We believe that our approach of performing a large number of subprojects is justified because:

- It allows us to train a large number of students or other beginning researchers in research work that has the potential to produce new scientific knowledge. Indeed, the number of local researchers involved (29, not counting another 16 researchers at other Thai universities or summer research students) is almost as large as the number of subprojects because most of them worked in teams, with new researchers learning from more experienced researchers. At the same time, several students have worked on more than one project for a diverse experience.
- While this approach leads to a substantial fraction of subprojects that do not lead to international publications, we believe this “inefficiency” is justified by the intellectual stimulation it provides. Furthermore, some subprojects work out very well and indeed lead us into a new and fruitful line of research. An example is the study of magnetic turbulence. In 2000, Prof. Matthaeus invited DR to work on this topic during a visit to U. Delaware in the US. Originally DR joined this work “for fun” and intellectual stimulation; now this is one of our group’s most productive lines of research, with a strong synergy with our existing experience in SEP transport, and has proven to be good “brain food” for our students.
- We really do not know at the outset which subprojects will bear fruit. A good example is provided by our subprojects on fitting SEP data: Almost none of the key results were expected when starting to fit the data. On the other side of the coin, not every data set yields a good fit, or is complete enough to provide a unique best-fit. Even when it does, just saying “we were able to fit the data” is not sufficient for international publication - for that, there must be convincing evidence for a non-standard (more interesting or more detailed) transport model or injection function.

Finally, the Principal Investigator would like to note that he is very happy with the Thai students who have worked on this project, and is proud to have the opportunity to help train them and work with them. In addition to their actual research, our group aims to broaden their experience in various ways:

- A regular weekly meeting on student research, or for each research topic.
- Graduate students typically present their work orally in at least one scientific meeting, almost always in English. Before each seminar, research, or thesis presentation, group members listen to the speaker and give extensive comments and criticism so that they learn from the experience of presenting their results to non-specialists.

Let us close the discussion by noting that our research activities have attracted increased attention from the international scientific community. Our extensive international collaboration is evident in the author lists of our journal publications and conference presentations. We receive invitations to speak at international conferences and to review articles for major journals. The Principal Investigator has been told by a senior US researcher that he accomplished more by working in Thailand for (at that time) 9 years (presumably because of our academic freedom and strong funding for basic research) than he would if he spent that time working in the US (where he would probably have worked on multiple post-doc jobs instead of working out his own ideas). One US researcher (with whom we have not yet collaborated) recently paid us the kind compliment that he chose to attend a conference because our research results would be presented there.