



Max-Planck-Institut für Radioastronomie

25 METER - MILLIMETER WAVE TELESCOPE

MEMO # 16

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Dear Dave,

Since I do not know how much you are already informed about the European plans for millimeter-wave telescopes, I would like to give you a short report on what I have learned here meanwhile. Please show this letter (or give a copy) also to Barry Turner and our 25-m group.

The overall plan is a cooperation between France and Germany. The French will build a 4-dish interferometer, of 10-m diameter each. The interferometer shall be working down to $\lambda=2$ mm wavelength, but one of the four telescopes shall be usable down to $\lambda=1$ mm, as a single dish.

The Germans plan to build a single 30-m dish, down to $\lambda=2$ mm, but with $\Delta = \lambda/20$ if possible (instead of our $\lambda/16$). Both the interferometer and the 30-m telescope shall probably be located on the same site, sharing all office and other buildings. Furthermore, the 30-m then shall (part-time) be usable as a fifth telescope of the interferometer.

The 30-m dish will be developed, designed and built by Krupp and MAN again. It is planned (most probably) to use basically the same design as the 100-m dish, with some modifications and improvements. Our mathematical iteration procedure for homologous deformations has already been programmed by Krupp, and has been used about 2 years ago with good results on a preliminary study

for a 30-m dish. The method will be used again for the final design study.

A preliminary cost estimate gave about 45 million DM (18 M \$) for the combined project, including single dish, interferometer, site preparation (cable car) and all buildings. The 30-m dish has been roughly estimated with 10 million DM (4 M \$) including the design study. Just two weeks ago, the Bonn Max-Planck-Institut was finally granted 2.3 million DM (0.9 M \$) for design study, final design, and all shop drawings. This then would leave about 7.7 million DM (3.1 M \$) for the telescope itself, but this latter number of course is at present only a rough estimate and some increase of it will be tolerated.

Site studies are still being continued. Probably it will be in the Alps of southern France, elevation 2500 m (8200 ft.). Some other places are considered too, but none any higher.

The question of radome or not has not yet been decided. Hachenberg suggests, for example, no radome but a "plastic bag" around the backup structure, with heating and ventilation, for a constant thermal environment. But final decisions on this question will depend on the detailed design studies of Krupp, and on the final choice of the site, as well as on cost estimates for radomes.

A preliminary time schedule plans two years for design and two for manufacturing and erection; to be finished and usable in 1979.

What about our plans ??

Greetings, to all of you,

- S. von Hoerner -

P.S.: I would like to send a similar report to Peter Boyce who organized the NSF-meeting in October on millimeter-wave astronomy.

If you do not object, could you or Barry please send me his address?