TOOLS OF THE RADIO ASTRONOMER

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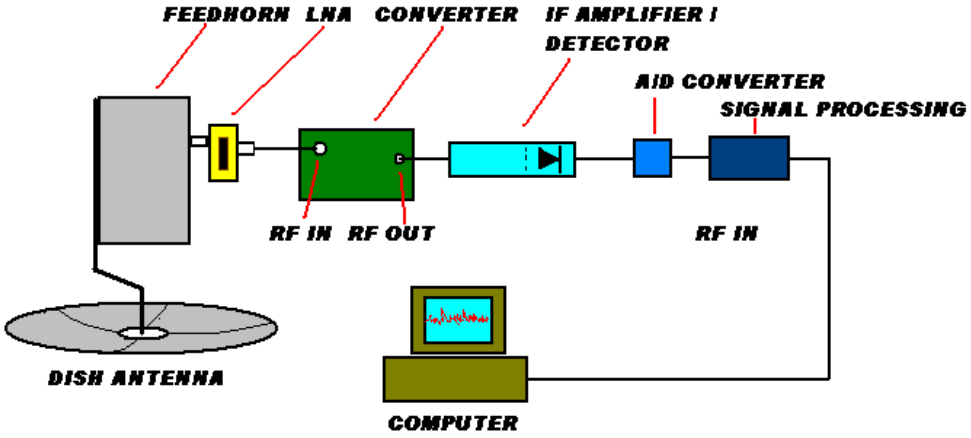
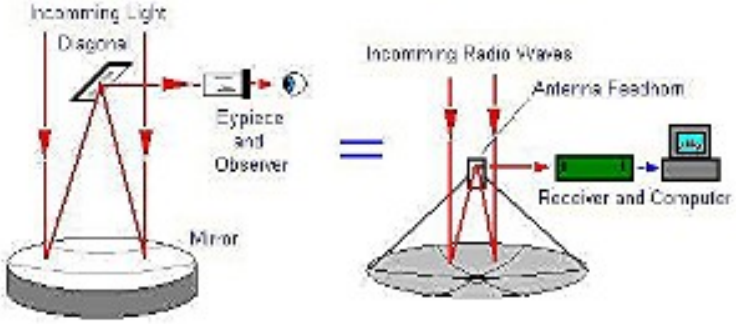
Tools, What kind of tools are we talking about? The tools we speak of are really the receiving parts or modules that make up the radio telescope. Pictured below is a simplified block diagram, illustrating the structure of a radio telescope.



Block Diagram

Lets take each individual section within the block and, describe the function. The first section is the antenna. Here we show an illustration of a parabolic dish antenna.



Antenna Block

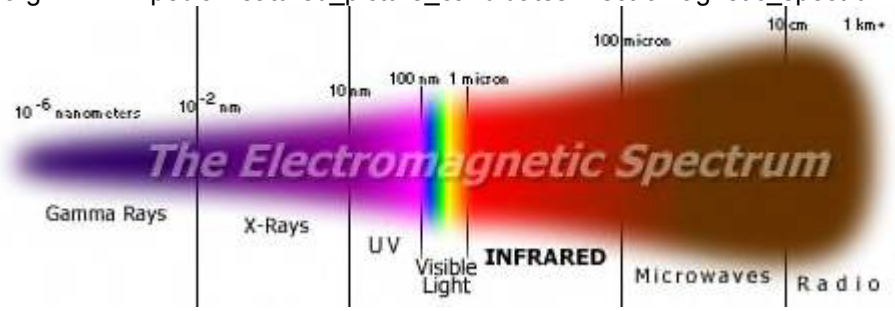
Shown here is the most significant portion of a radio telescope, the antenna. Here we will use a standard parabolic dish to describe the function.

Those of you who are familiar with optical astronomy and the reflector telescope, will notice the similarity of a parabolic mirror as to the same function of the parabolic dish.

Incoming radio signals arriving at the surface of the antenna are reflected at an angle, to coincide with the focal point of the antenna. In this case, just marginally inside the lip of the feedhorn.

Both function the same way as to the incoming signal or light. As shown, the radio and light locations, within the electromagnetic spectrum.

http://en.wikipedia.org/wiki/Wikipedia:Featured_picture_candidates/Electromagnetic_spectrum



Spectrum

Inside the feedhorn, is the actual receiving element, the monopole antenna. This is usually a ¼ wavelength element.

Feedhorn

The next significant part of the block