

There are the things we are studying. At the same time we are studying the advanced capabilities of our spacecraft. These will have to come together in some detail to determine an optimum program.

I would like to say a few words about our two newest areas of interest, which we have gotten into very recently. One is the area of manned meteorology. Our meteorological work to date in unmanned satellites is mainly photography, and this provides a very significant amount of information.

In addition to pictures, it would be very desirable to measure such things as pressure and temperature and moisture in the air over large portions of the Earth at nearly the same time so as to give a more definite understanding of the weather.

There are proposals which we are now studying as a meteorological payload for a manned spacecraft. One of the ideas here is to test flight experimental instrumentation with the idea that we could test several different types, in an engineering fashion, and from those determine the best instrument which in turn might be miniaturized and flown on unmanned satellites.

We would like, obviously, to use man's ability to direct sensors to particular areas of interest, and I think we have already seen this demonstrated in the Gemini program.

We would like to take a number of sensors for simultaneous observation measuring various parameters, so as to get a better understanding of the weather mechanisms.

Instruments which may contribute to the detection of air pollution—this is a specific device which can give you an indication of the density of the particles in the atmosphere.

I have already mentioned the ability to measure temperature, and other things, and these are mainly through these IR temperature sensors. They are infrared devices, and will enable us to measure temperatures around the Earth.

One particular device here, a radiometer will offer us the unique advantage of being able to see through the clouds. While the weatherman likes clouds, he would also like to be able to see through them sometimes and measure density, temperatures under the clouds.

As we have mentioned earlier, this large package of instruments takes advantage of the increased payload capacity and volume provided by the AAP missions.

Now, this next slide (fig. 35) is a pictorial of these several instruments that we are studying. One of our jobs, obviously, is to integrate these separate instruments into a package. That package of instruments would weigh on the order of 2,400 pounds.

Our last area I would just like to mention is the Earth resources survey program.

I suspect you have heard something about this. The idea is that satellites would allow us to map large areas of the world, and in mapping I am not talking about conventional maps, but to determine what is there in the way of land, land usage, water, water movement, so forth; to not only determine it one time, but to determine it repeatedly, to determine its changes, and anticipate what is going to happen.