

Space radar to check floods

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The space shuttle and the loads it can carry into space are going to open up a new frontier for scientists of the world.

TAMU scientists from the Remote Sensing Center are developing the types of systems that will provide high resolution radar observations of the land, sea and atmosphere.

The center, a division of the Texas Engineering Experiment Station, has been funded to an additional \$19,000 by the Jet Propulsion Laboratories to specify the needs of the shuttle radar.

The shuttle will deliver into space a sophisticated radar system capable of providing photo-like images of the earth's surface, even when the earth is covered with clouds.

"We are picking out the major applications for the radar and are defining the experiments," said team spokesman Richard Newton. "Microwave sensors provide excellent images of the surface regardless of the weather or lighting conditions. Therefore, they offer the only means of collecting information about areas having frequent cloud cover, such as the Northeast U.S."

For instance, the U.S. Department of Agriculture wants to monitor watersheds," Newton continued. "The observations can be used for planning dams and reservoirs. With these readings, run-off

information that would take years to accumulate by conventional means could be done in a short time by satellite. This would allow flood forecasting to become a reality."

Another area of application is for Great Lakes ice navigation. The satellite radar can note the size and shape of ice flows and ice thickness while measuring the roughness and the ability of ships to penetrate the ice. This method could also be used to map the polar ice cap.

Mineral exploration is an area of research where radar can penetrate vegetation and the earth's surface to note composition of rocks and aid in petroleum exploration.

The equipment can monitor the progress and extent of floods, hurricanes, blizzards, destructive winds, fires, tidal waves, earthquakes, and volcanic eruptions. This can be done in any weather during either the day or night.

The satellite radar could also be sensitive to vegetation types and conditions while recording land use patterns and changes.

Finally, there could be observations of ship activities in support of international agreements, especially in the economic coastal zone.

"This is only part of a two-year, NASA-funded study by the JPL and TAMU to identify applications of

the radar data that will establish a demand for a shuttle radar and provide guidelines for the sensor design," Newton added.

The radar system can be put into

orbit and picked up by the large capacity shuttle. The shuttle can be used as a versatile platform for collecting radar data or as a launcher of unmanned satellites equipped with

radar systems. "The space shuttle will be a real truck for payload delivery, retrieval, service and operation," Newton said.

Engineers say red tape causing sewer backups

"At the top of a lot of federal agencies are mostly lawyers and economists who don't give a damn about professional engineers," an Environmental Protection Agency (EPA) official contended here last Thursday.

Harold P. Cahill, Jr., director of the municipal construction division of the EPA, spoke before the 39th

Annual Meeting and Engineering Exhibition of the Texas Society of Professional Engineers at TAMU.

Cahill was speaking of the EPA's efforts to cut red tape and begin building under the government's \$18 billion federal waste water treatment program. Consulting engineers claim they are hamstrung by regulations and restrictions. Cahill

said by working together with the EPA many problems can be overcome.

"Engineers have to stop complaining and start lobbying," he said in an earlier press conference.

"The goals of the program are by 1977-78 to achieve secondary treatment for municipal wastewater and by 1983 to achieve swimmable and fish sustaining national waters," he said.

High school sports may help universities

More research is needed, thinks a TAMU sociologist, to pinpoint the role high school sports have in influencing athletes to go on to college.

High school sports don't seem to hurt grades or college aspirations of

athletes, said Dr. J. Steven Picou. In fact, his evidence suggests athletic participation may actually enhance development of educational plans.

However, more in-depth studies are necessary, he said, to bring the theory into clearer focus.

Picou and Ohio State University researcher Dr. Evans Curry examined replies from 3,200 Louisiana high school seniors.

Findings suggest that participation in high school sports has an encouraging effect on the student-athlete to attend college.

This is especially true if the athlete is from a rural area and was not particularly inclined toward college before competing.

However, problems may arise for some athletes who experience an "inflated aspiration" from the visibility and laurels that accompany success in high school sports. More research is needed in this area, said Picou.

"It appears that our data provides relatively modest support for the athletic participation-educational aspiration hypothesis. Participation in high school sports does not constrain or hinder development of high-level aspirations for educational achievements," he said.

"However, because previous investigations failed to isolate the independent effects of athletic participation on aspiration level, the magnitude of the relationship may be somewhat exaggerated."

Further clarification of the role of high school athletics for social mobility could emerge from the studies.

"Additionally, high school athletic competition and achievements may be more important for minority youths' mobility orientations and achievements," Picou said.

At present, Picou is completing a study on the role that athletic success plays in the development of educational achievement values among high school youth.

"But it's not going to get done without the help of the state," Cahill continued. "The EPA's budget has tripled since 1973 but the staff hasn't. So if these water projects are to get done a lot of the work has to be done on the local and state level."

"These projects have to move and show progress," he pointed out. "If they start running into trouble, consulting engineers will be forced into competitive bidding and we certainly don't want that."

"It would be like having doctors bid on your operation," Cahill said. "Professional engineering associations must see that this doesn't happen. Many feel this would socialize the industry and most professionals would walk away from that kind of arrangement, leaving it to the drag of the profession."

"The major task for Texas will be to obligate its \$240 million portion of funds for waste water treatment facilities," he said. "But Texas has done a magnificent job to date, so there is confidence in your ability to do so. As you will recall, based on the 1974 needs survey, it will take \$2 billion in Texas to raise treatment up to secondary or higher where required by water quality."

Cahill also said that despite the state of the economy the EPA would not sacrifice environmental goals to provide jobs and stimulate the economy. He said that deadlines for environmental improvement might be extended, but not discarded.

Cahill further said that a move is underway to rid the EPA of deadwood and to keep it functional.

Oil exploration hazards, study for researcher

Oil and life in the oceans of the world have become more and more entwined as the search for petroleum creeps over the Continental Shelf and on the ocean bottoms.

The American Petroleum Institute has funded Texas A&M University biologist Dr. Jack Anderson with \$95,000 this month to sound out possible ecological dangers to marine life as the search for energy accelerates.

He has established a laboratory base on a Shell Oil Company Offshore production platform in the Gulf of Mexico.

Anderson plans to study the growth and reproduction of marine life over a long period by shuttling researchers from TAMU back and forth. This will introduce chronic petroleum types of pollution for extended periods.

Biological studies on organisms from the Gulf are significant since this body of water receives more than two-thirds of the total dissolved chemical load discharge into the oceans from the Continental U.S. Also the Gulf supports large fisheries for shrimp, blue crabs, oysters, and several species of fish.

Along with the studies of the effects of petroleum hydrocarbons, members of the research team will introduce experimentally heavy metals like mercury, cadmium and lead into various tanks to determine their effect on marine life.



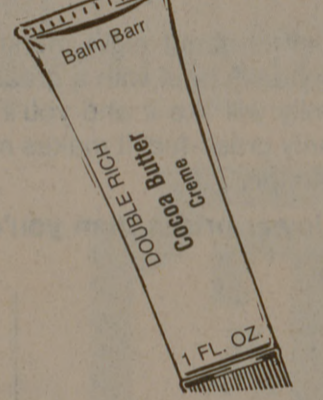
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