SPACEFLIGHT

3M hails

crystals
success

ST. PAUL

3M's diffusive mixing of
organic solutions (Dmos)
experiment flown on Shuttle
mission 51A last year has
shown "dramatically the dif-
ference between space-grown
and ground-produced crys-
tals", the company says.
Urea crystals are a chemical
standard by which others are
compared. In space, using the
3M-patented oven, the yield
of these crystals was far
greater and they were pure,
clear, and shiny compared
with the white, grainy crystals
produced on Earth. 3M's
fibre-optics division is inter-
ested in the results of this
experiment.

Meanwhile, General Motors
Research Laboratories have
joined 3M for the Shuttle 61B
mission in November to grow
semi-crystalline polymers
that may lead to better vehicle
parts. Using the same elec-
trically heated apparatus as
Dmos,. scientists want to
determine the effect of crystal
phase structure on the
mechanical properties of
nylon. They will fly a mixture
of chemicals, heating the
samples to specific tempera-
tures for short periods to
induce a polymerisation cycle
to produce nylon.

3M has a ten-year plan to
use 72 Shuttle missions before
developing a chemical labora-
tory in space. The company is
interested in studying the
photo-optical, magnetic, and
other properties of organic
crystals to see how they might
j be applied to products in elec-
tronics, computers, and video
tapes.

The company is one of ten
to have signed joint endeavour
agreements with Nasa's
Office of Commercial Pro-
grammes. The others include
Deere, Du Pont, Fairchild
Industries, Martin Marietta,
McDonnell Douglas, Micro-
gravity Research Associates
Orbital Systems, and Spaceco.
Twenty additional contracts
are pending.

These partnerships involve
no funding, but make avail-
able Nasa research facilities,
expertise, laboratories, and

GE models Space Station
General Electric's Space Systems Division is using computer-aided design to model components of the Nasa Space Station (above), including the pressurised laboratory module (top) for which GE is one of the prime contractors.

flights on Shuttle. Companies
supply the money and their
own research facilities and
staff. Nasa has established six
regional "centres of excel-
lence" to carry out its com-
mercialisation programme.
It has also designated
private agent companies to
link Nasa to non-aero-
space firms through these
centres.

According to Isaac Gillam,
director of Nasa's Office of
Commercial Programmes:
"We are 15 years away from
the major economic impact
that space-derived industries
will have on society." But
according to the US Congress-
ional Research Service, the
major obstacle is affordable
insurance.

Indonesia

chooses Shuttle

candidates

JAKARTA ~

A female microbiologist and
a journalist are among
Indonesia's four candidates to
fly as a payload specialist on
Space Shuttle mission 61H in
June next year.
The four are: Dr Pratawi
Sudarmono, M. K. Jasuf, (a
pilot), Taufik Akbar, (a tele-
communications engineer)
and journalist Bambang Hari-
murti. It is unlikely, however,
that Harimurti will be flown
unless Nasa flies a US jour-
nalist before June 1986.

SPACESHOTS

Japan is forming a Space
Utilisation Centre to promote
the applications of space to
manufacturers, and is plan-
ning to develop a free-flying
platform to support research
and development operations.
The platform will be designed
for deployment by the US
Shuttle and, like Fairchild's
Leasecraft, will facilitate pay-
load changes in orbit.
Completion of the first
platform, which is regarded
as a precursor to a laboratory
to be attached to the US
Space Station, is expected in
1990.

Fairchild Space is to
provide the multi mission
modular spacecraft bus for the
Nasa/General Electric upper
atmosphere research satellite
(UARS). This will use a re-
furbished Landsat communi-
cations and data handling
module, a spare Landsat
power module, and the atti-
tude control module returned
from space a year ago on the
Shuttle Solar Max repair
mission. The spacecraft bus is
to be delivered early in 1988 in
time for a UARS launch late
in 1989.

The US Air Force may have
to apply for authorisation to
launch the Space Shuttle
from Vandenberg during
certain times of the year,
following the National
Marine Fisheries Service's
call for the banning of some
flights during the seal breed-
ing season on islands west of
Los Angeles. It is feared that
sonic booms may affect breed-
ing. In Japan, the fishing
industry has proved to be a
powerful enough force to
restrict rocket launches to
four months of the year.

Nasa's second tracking and
data relay satellite, TDRS-B,
which was due to fly in Feb-
ruary this year on the
cancelled Shuttle mission
5 IE, has been repaired and is
ready for launch. Nasa had
suggested to West Germany
that its Spacelab D-l mission
be delayed into next year so
that its launch slot could be
taken by TDRS-B on mission
51L, thereby providing Space-
lab D-l with more data
coverage. The Germans opted
for the October launch,
however, and 51L goes in
January as scheduled.

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