

NASA Goddard's Recipe for Baked Spacecraft

Just three simple ingredients!



1
00:00:00,300 --> 00:00:03,133
If you want to make a spacecraft,
you've got to break a few eggs.

2
00:00:03,633 --> 00:00:05,100
No, that's not right.

3
00:00:05,100 --> 00:00:07,400
You've got to bake for a few days.

4
00:00:07,400 --> 00:00:11,233
That's it. So follow along for our recipe for homemade satellite.

5
00:00:11,833 --> 00:00:14,200
First up, collect your ingredients.

6
00:00:14,200 --> 00:00:16,966
We're making an ocean,
land, and atmosphere
monitoring satellite

7
00:00:16,966 --> 00:00:20,566
called PACE. So we'll gather
two polarimeters, which measure

8
00:00:20,566 --> 00:00:21,933
the polarization state of light

9
00:00:21,933 --> 00:00:24,233
as it travels through water
and atmospheric aerosols.

10
00:00:24,566 --> 00:00:27,566
And one Ocean Color Instrument,
which will measure light reflected

11
00:00:27,566 --> 00:00:31,300
from the ocean surface to
study tiny ocean creatures

called phytoplankton,

12

00:00:31,566 --> 00:00:33,900

as well as atmospheric
properties above the ocean.

13

00:00:35,300 --> 00:00:38,700

Wrap these individual components
in special spacecraft foil.

14

00:00:38,700 --> 00:00:42,766

These blankets for satellites
help keep the instruments
that need to be hot, hot,

15

00:00:43,100 --> 00:00:46,033

and those that need
to be cold, cold
while they're in space.

16

00:00:46,433 --> 00:00:48,500

We make them special
right here at Goddard.

17

00:00:49,766 --> 00:00:52,900

Place the instruments
in the Thermal Vacuum
Chamber or TVAC.

18

00:00:53,400 --> 00:00:56,600

This chamber mimics
some of the extremes
the satellite will experience.

19

00:00:57,066 --> 00:01:00,433

Space can be very cold,
but sunlight can heat
the spacecraft up.

20

00:01:00,833 --> 00:01:03,966

This test ensures the spacecraft

and its instruments will handle both.

21

00:01:04,400 --> 00:01:07,100

It also creates a vacuum,
like the vacuum of space,

22

00:01:07,366 --> 00:01:09,666

to make sure the satellite
can withstand those pressures.

23

00:01:10,333 --> 00:01:12,333

We'll bake the satellite
components at a variety

24

00:01:12,333 --> 00:01:14,366

of temperatures and
pressures for several days.

25

00:01:14,766 --> 00:01:17,400

When your timer goes off,
remove PACE from TVAC.

26

00:01:18,733 --> 00:01:21,766

It's time for the last step of
building a spacecraft: Assembly!

27

00:01:22,100 --> 00:01:25,866

We'll install PACE's instruments
to get ready for launch in 2024