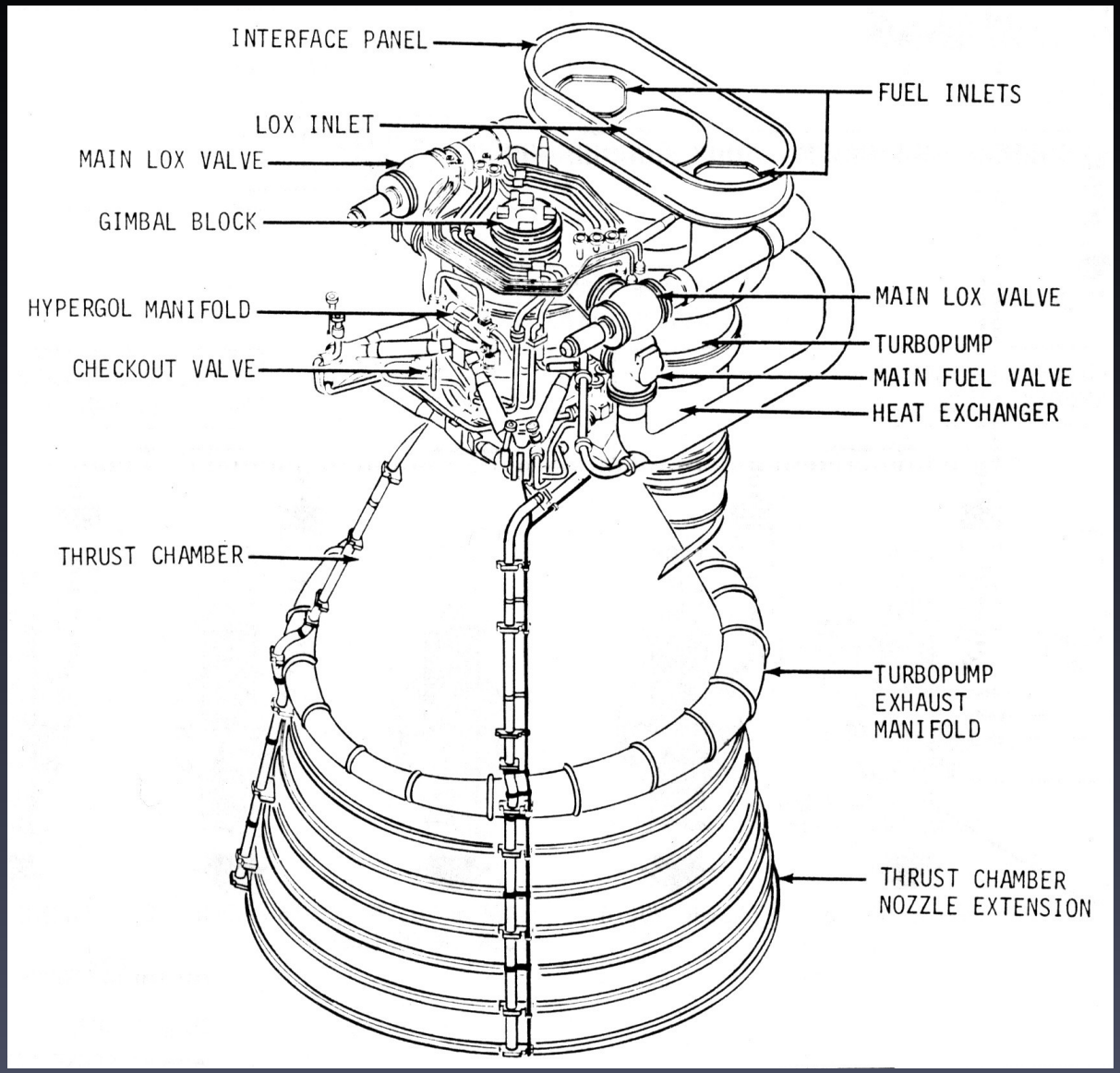
Geographies of the Missing and Lost

Search and Recovery of the F-1 Engines from Apollo 11

David Concannon
Explorer Consulting

Presented at
The Royal Geographical Society
28 August 2019

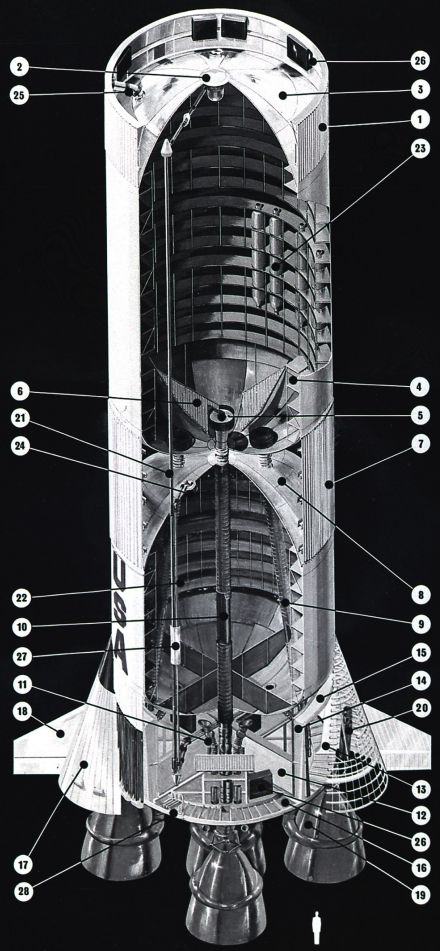
What is an F-1 Engine?


INTERFACE PANEL
FUEL INLETS
LOX INLET
MAIN LOX VALVE
GIMBAL BLOCK
HYPERGOL MANIFOLD
MAIN LOX VALVE
TURBOPUMP
CHECKOUT VALVE
MAIN FUEL VALVE
HEAT EXCHANGER
THRUST CHAMBER
TURBOPUMP EXHAUST MANIFOLD
THRUST CHAMBER NOZZLE EXTENSION


USA
USA
NASA/NEWSMAKER

Where do you look for an Apollo rocket?

“We’re NASA. We think of everything.”

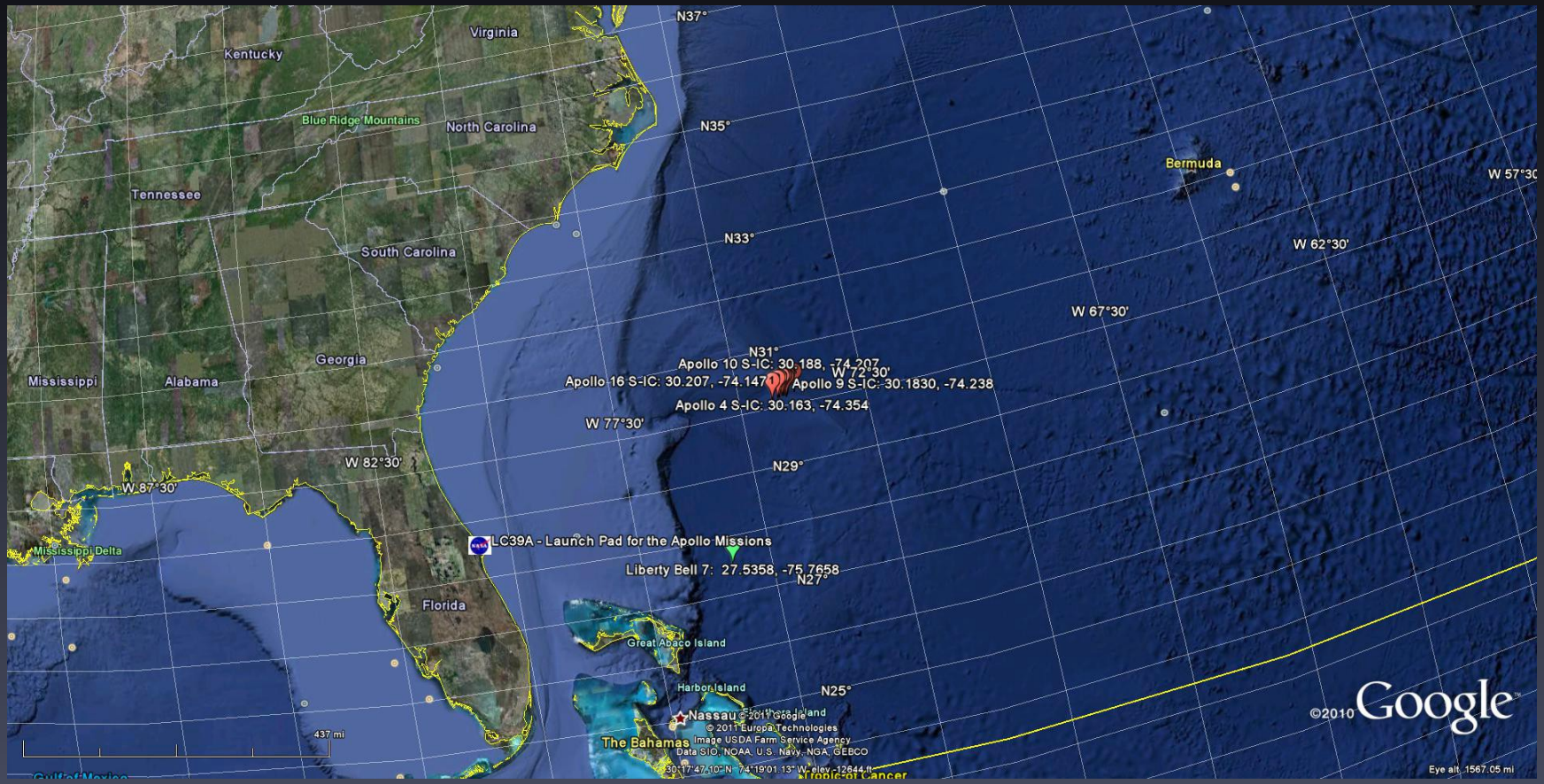


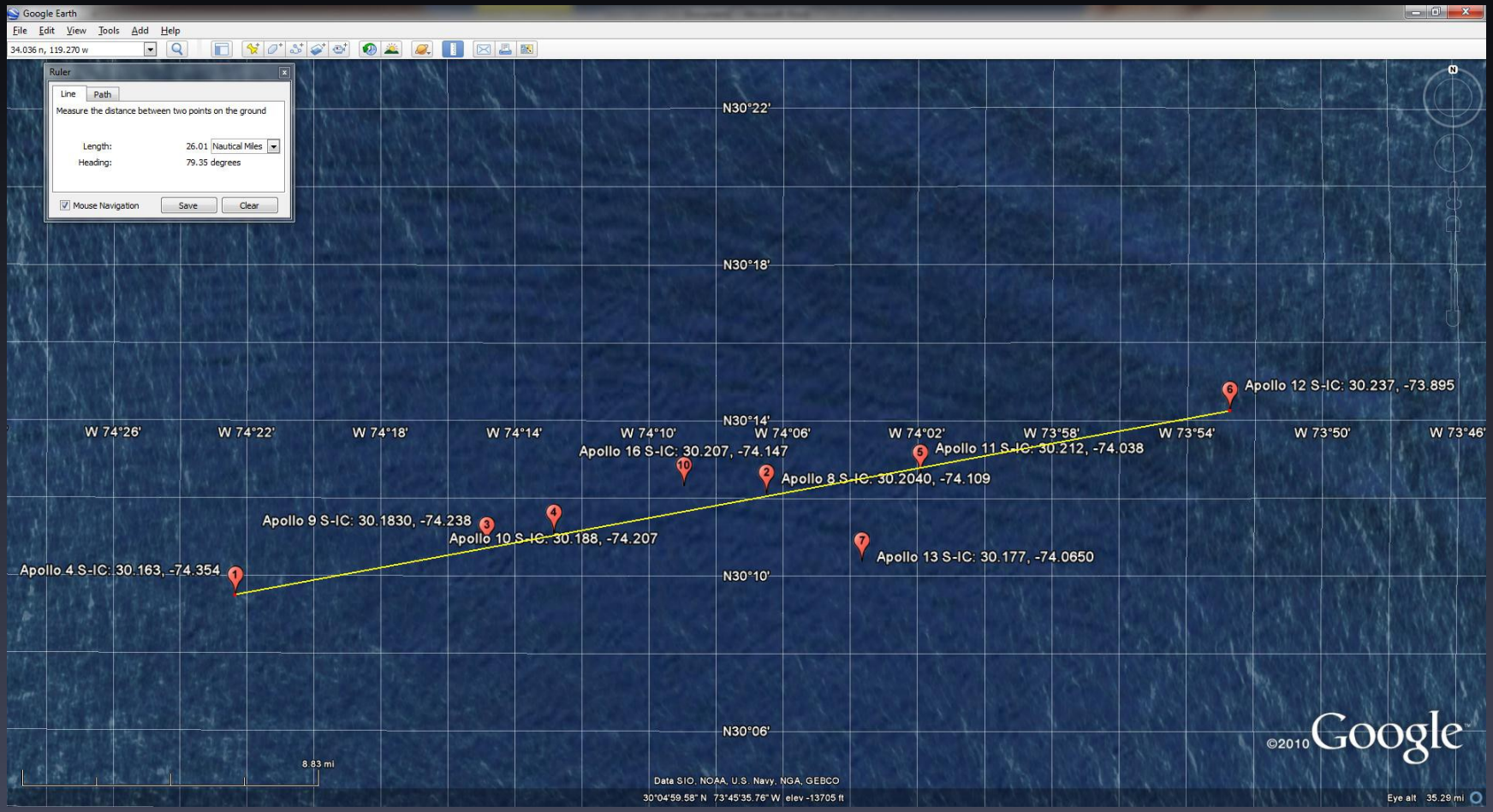
1 FORWARD SKIRT STRUCTURE
2 GOX DISTRIBUTOR
3 OXIDIZER TANK
4 ANTI-SLOSH BAFFLES
5 ANTI-VORTEX DEVICE
6 CRUCIFORM BAFFLE
7 INTERTANK STRUCTURE
8 FUEL TANK
9 SUCTION LINE TUNNELS
10 OXIDIZER SUCTION LINES
11 FUEL SUCTION LINES
12 CENTER ENGINE SUPPORT
13 THRUST COLUMN
14 HOLD DOWN POST
15 UPPER THRUST RING
16 LOWER THRUST RING
17 ENGINE FAIRING
18 FIN
19 F-1 ENGINE
20 RETRO ROCKETS
21 GOX LINE
22 HELIUM LINE
23 HELIUM BOTTLES
24 HELIUM DISTRIBUTOR
25 OXIDIZER VENT LINE
26 INSTRUMENTATION PANELS
27 CABLE TUNNEL
28 UMBILICAL PANEL

S-IC STAGE SATURN V LAUNCH VEHICLE

THE BOEING COMPANY AERO-SPACE DIVISION SATURN BOOSTER BRANCH

Things you find on Wikipedia…




Google Earth
File Edit View Tools Add Help
34.036 n, 119.270 w
Ruler
Line
Path
Measure the distance between two points on the ground
Length: 26.01 Nautical Miles
Heading: 79.35 degrees
Mouse Navigation
Save
Clear
N30°22'
N30°18'
N30°14'
N30°10'
N30°06'
W 74°26'
W 74°22'
W 74°18'
W 74°14'
W 74°10'
W 74°06'
W 74°02'
W 73°58'
W 73°54'
W 73°50'
W 73°46'
Apollo 4 S-IC: 30.163, -74.354
Apollo 9 S-IC: 30.1830, -74.238
Apollo 10 S-IC: 30.188, -74.207
Apollo 16 S-IC: 30.207, -74.147
Apollo 8 S-IC: 30.2040, -74.109
Apollo 11 S-IC: 30.212, -74.038
Apollo 12 S-IC: 30.237, -73.895
Apollo 13 S-IC: 30.177, -74.0650
8.83 mi
©2010 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
30°04'59.58" N 73°45'35.76" W elev -13705 ft
Eye alt 35.29 mi

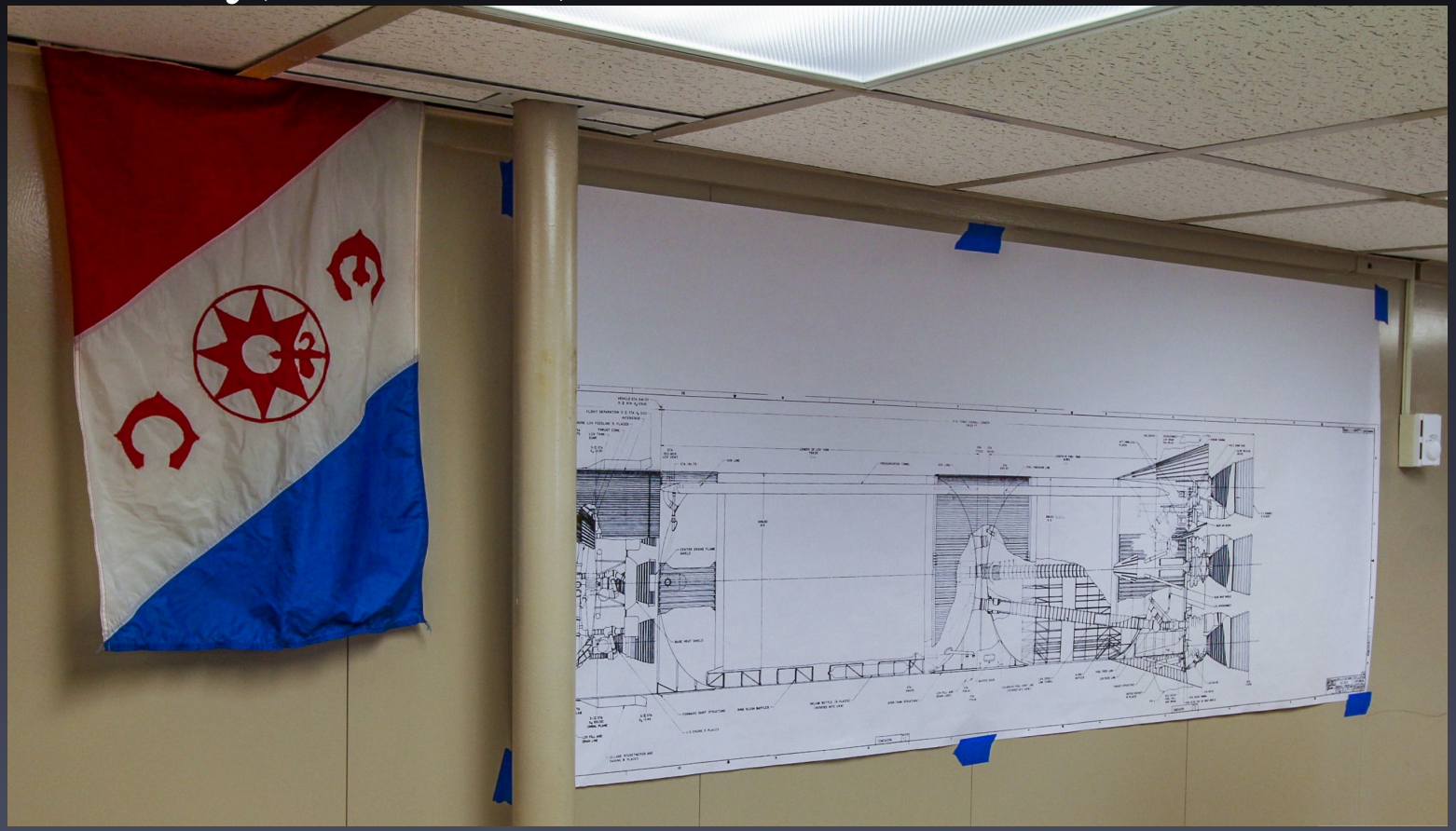
“It’s deeper and smaller than what?”

What could possibly go wrong, Part 1?
The 2011 Atlantic Hurricane Season

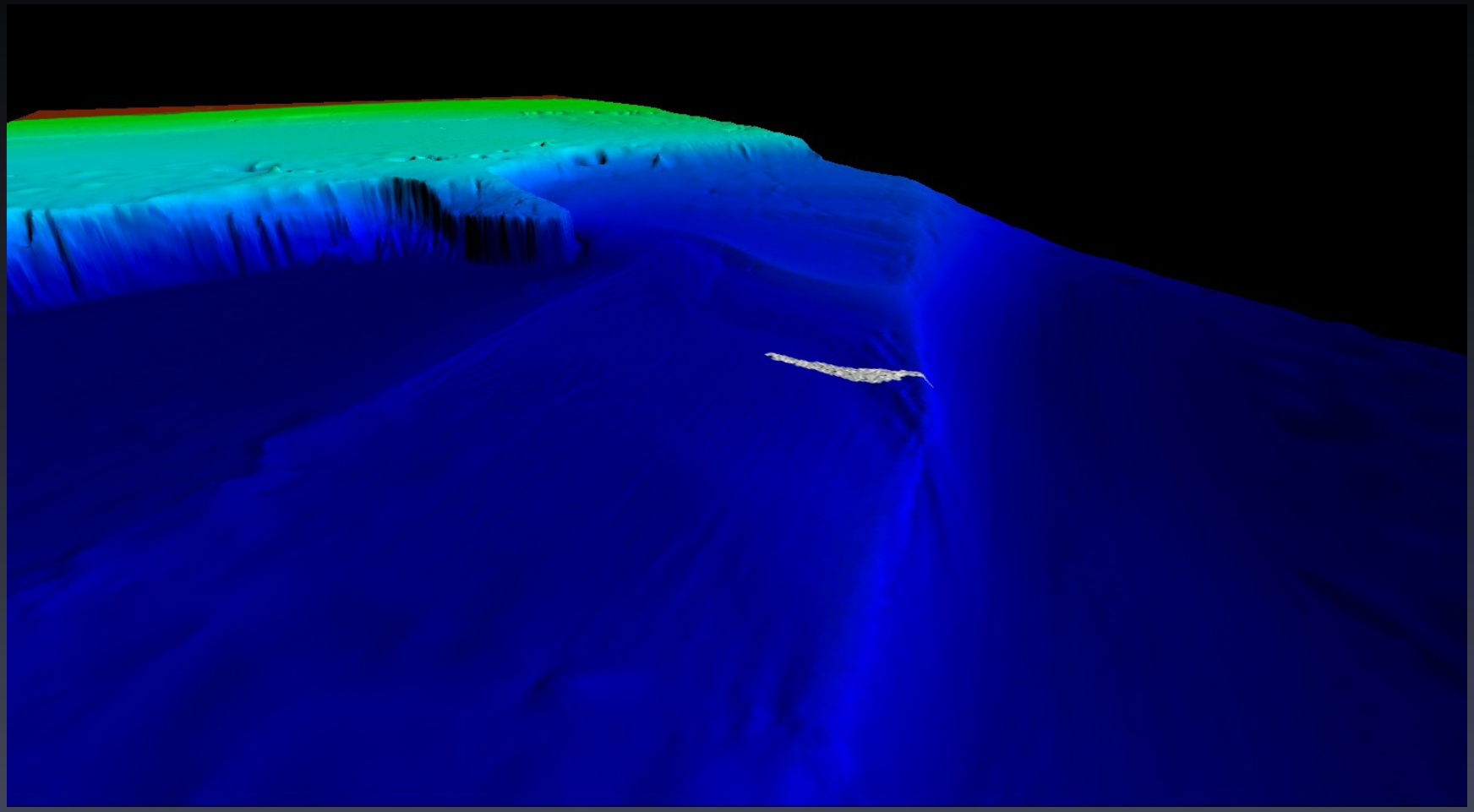
“We have the technology…”
Actually, we don’t. So let’s build it.

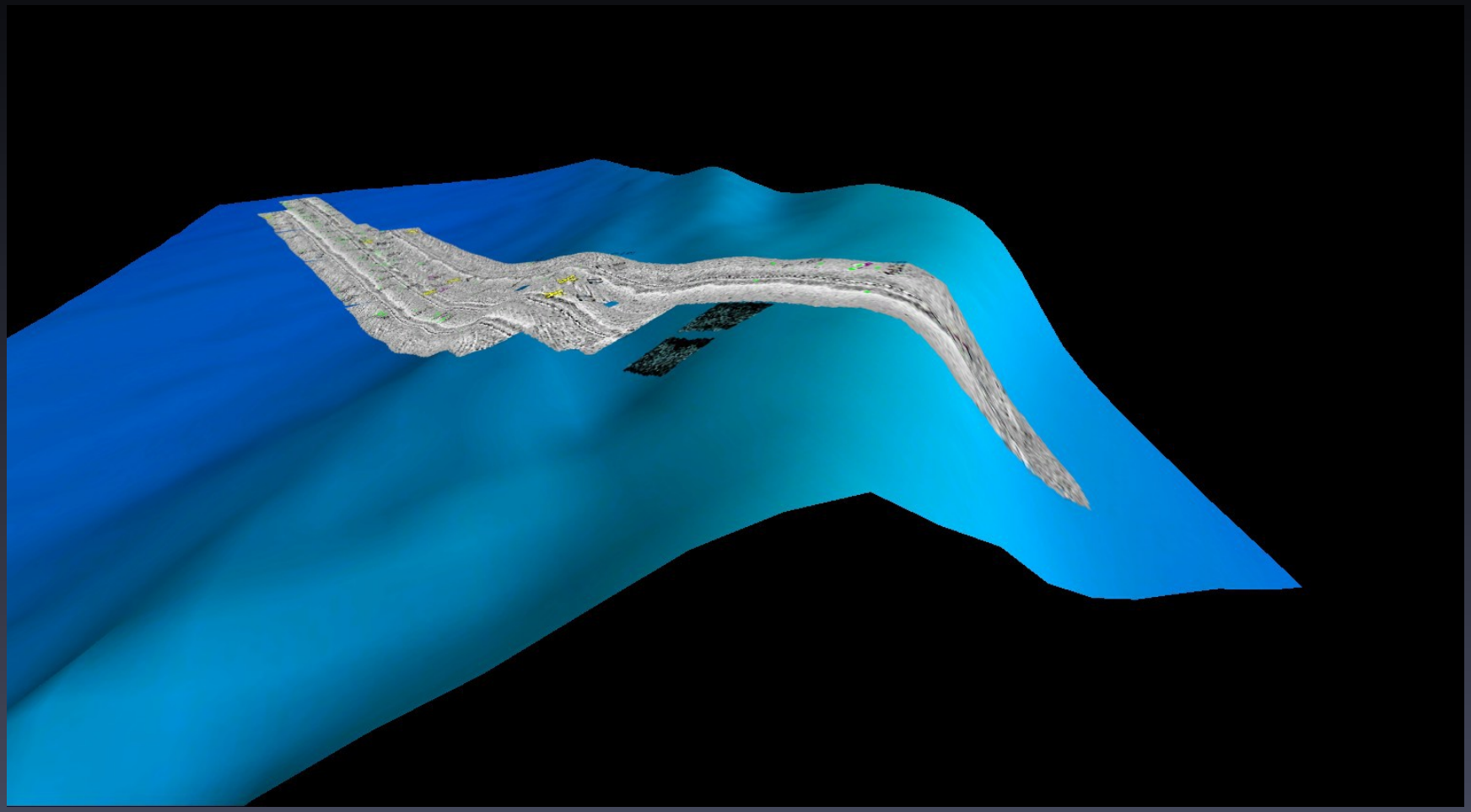
“We have a ship…”
Actually, we don’t, so let’s refit one.

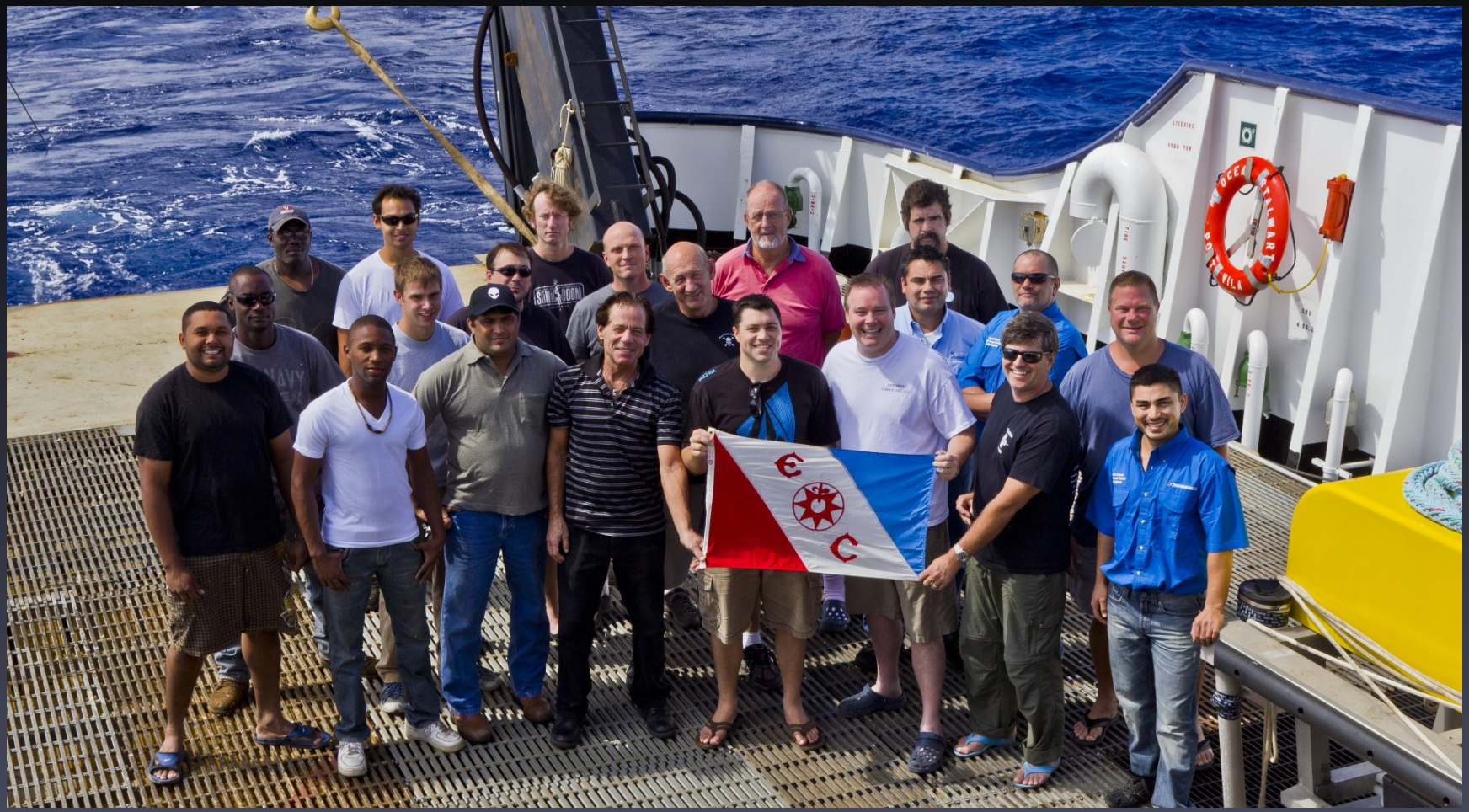
“We have a crack team of professionals who know what we’re looking for…”
Actually, we don’t, because I have not told them.



“We know where we’re going…”
Actually, …






E
C

March 28, 2012 – BezosExpeditions.com

I'm excited to report that, using state-of-the-art deep sea sonar, the team has found the Apollo 11 engines lying 14,000 feet below the surface, and we're making plans to attempt to raise one or more of them from the ocean floor. We don't know yet what condition these engines might be in - they hit the ocean at high velocity and have been in salt water for more than 40 years. On the other hand, they're made of tough stuff, so we'll see.

Though they've been on the ocean floor for a long time, the engines remain the property of NASA. If we are able to recover one of these F-1 engines that started mankind on its first journey to another heavenly body, I imagine that NASA would decide to make it available to the Smithsonian for all to see. If we're able to raise more than one engine, I've asked NASA if they would consider making it available to the excellent Museum of Flight here in Seattle. (For clarity, I'll point out that no public funding will be used to attempt to raise the engines, as it's being undertaken privately.)

NASA is one of the few institutions I know that can inspire five-year-olds. It sure inspired me, and with this endeavor, maybe we can inspire a few more youth to invent and explore.

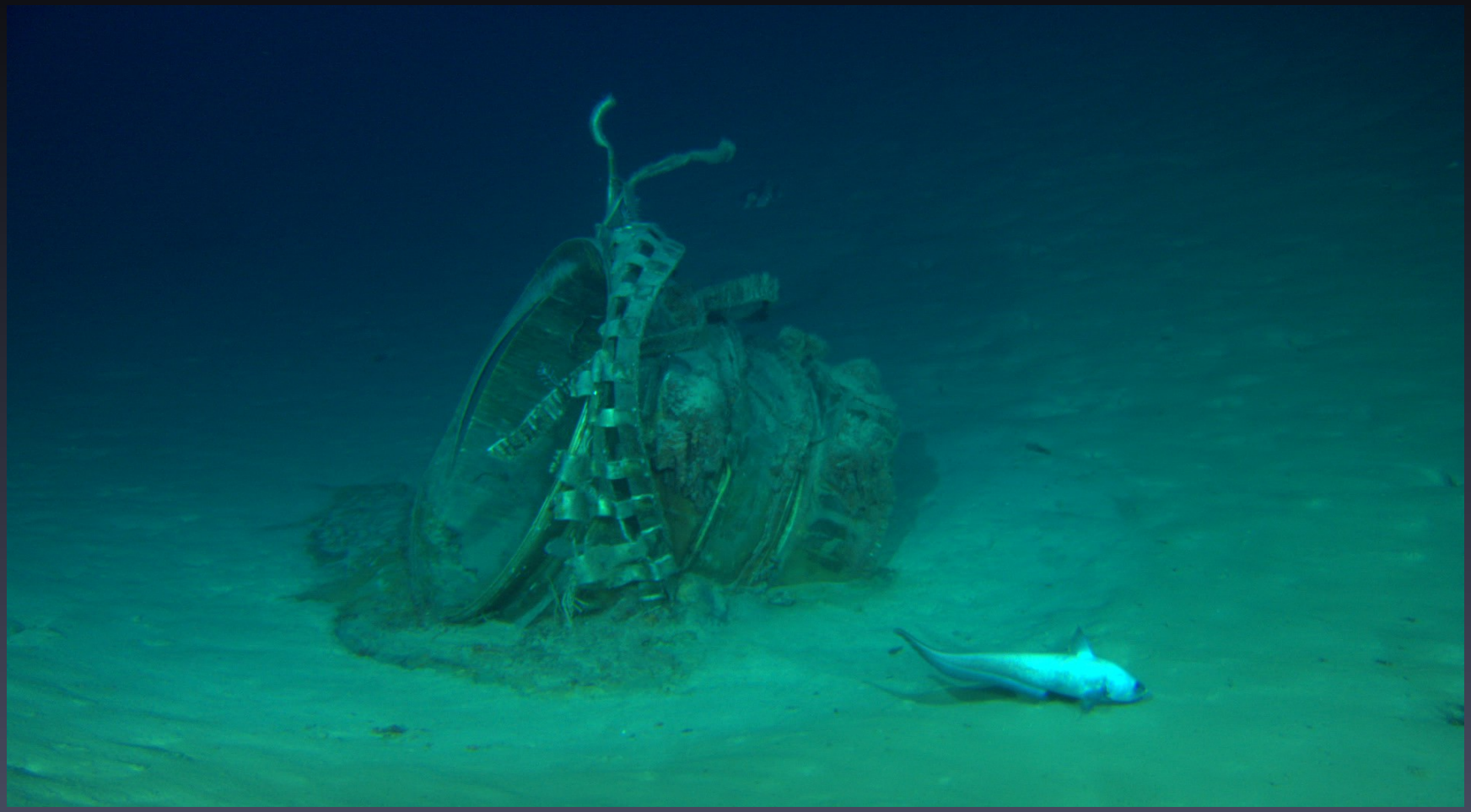
We'll keep you posted.

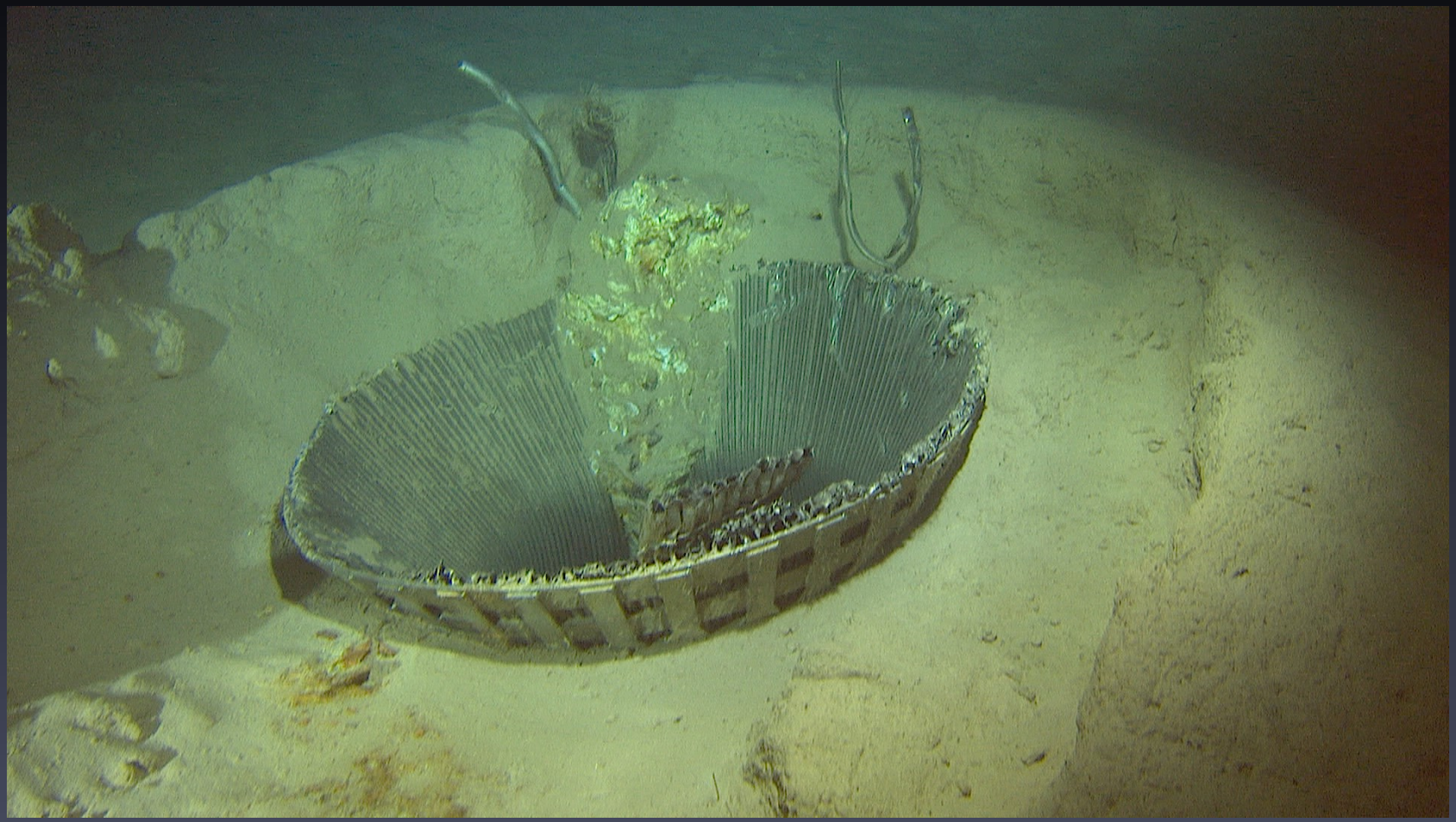
Sincerely,

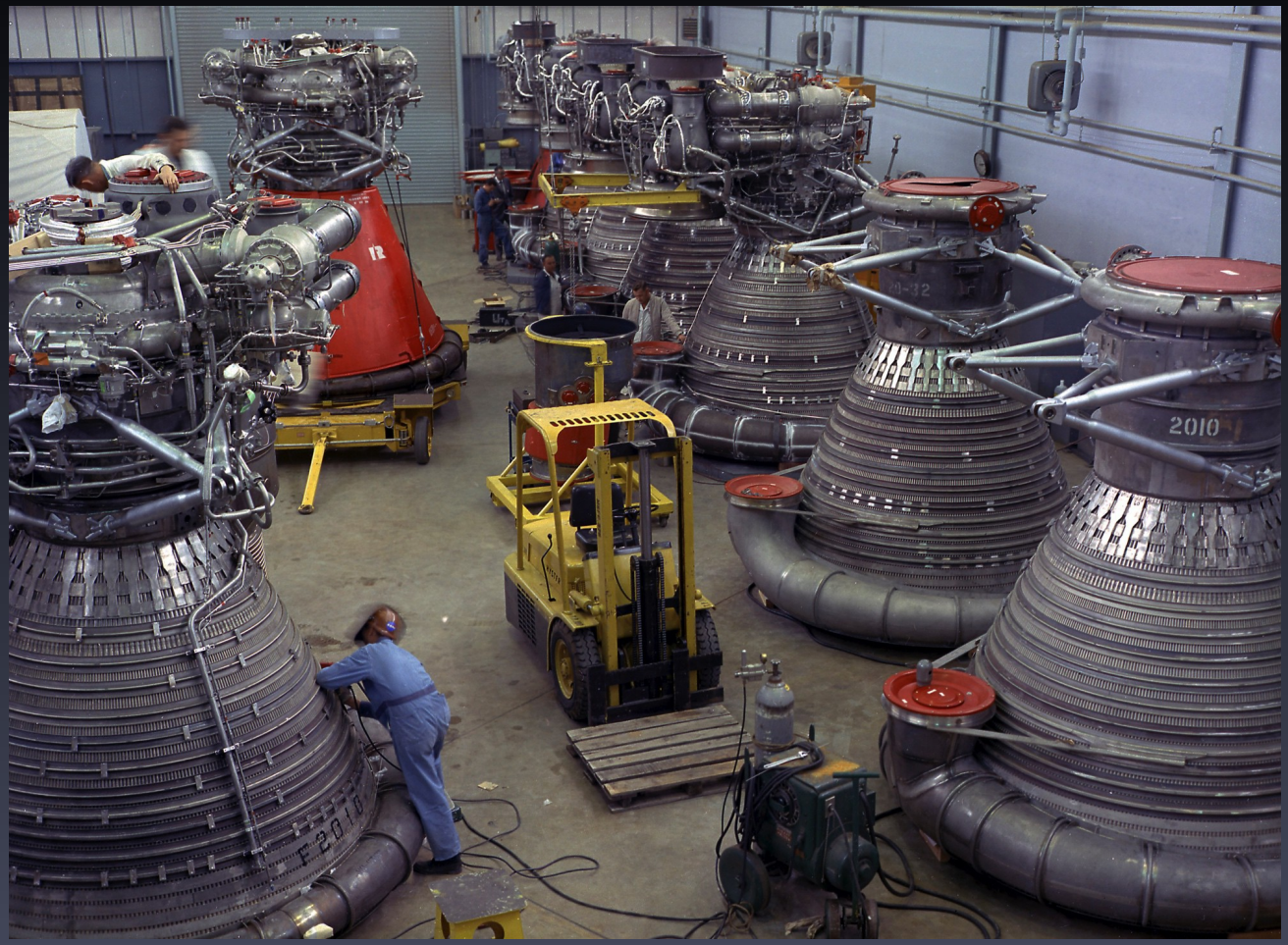
Jeff Bezos

“We need a bigger boat…”

“We need new deep sea technology…”

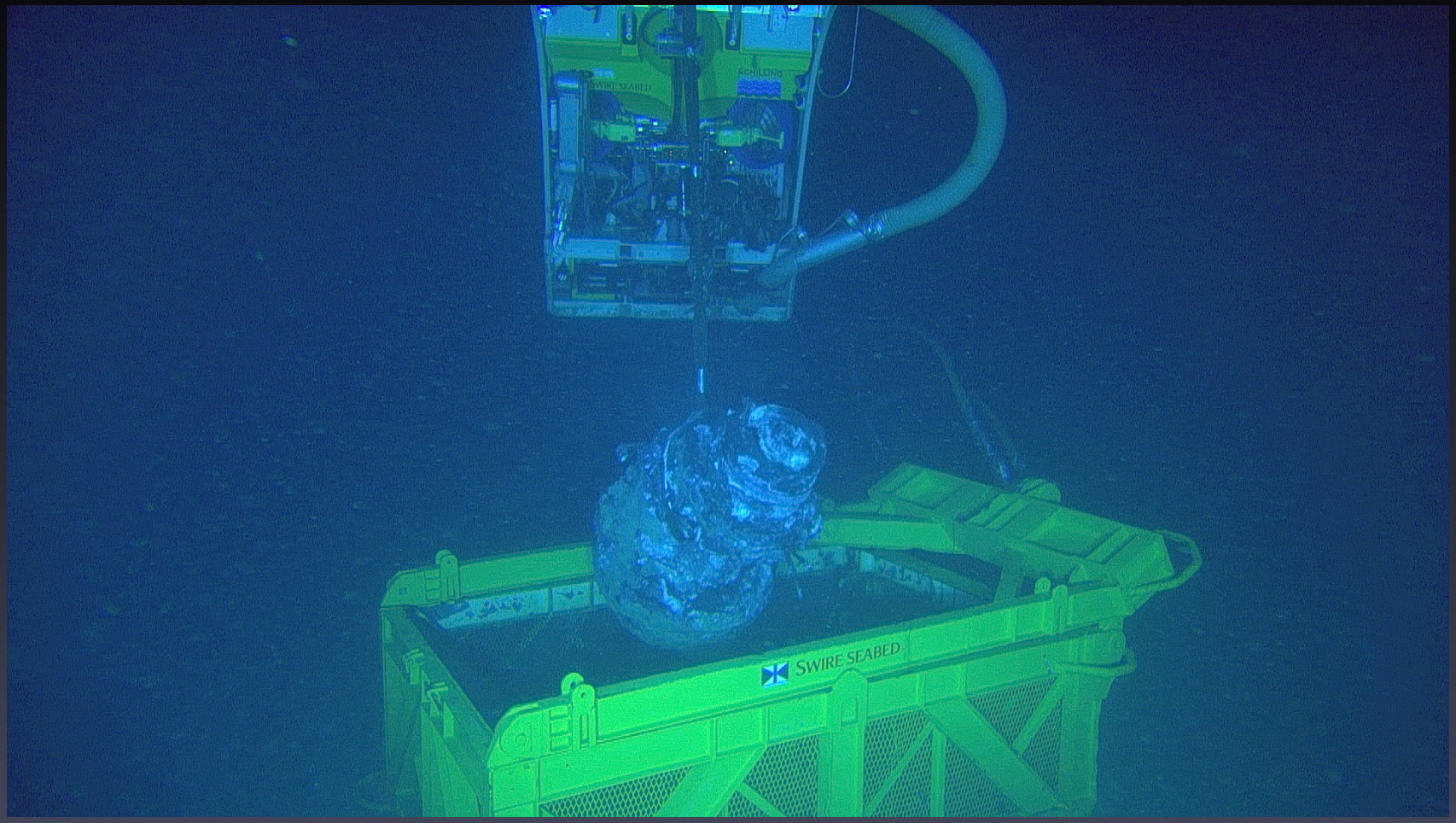





2010

Winter Storm Saturn

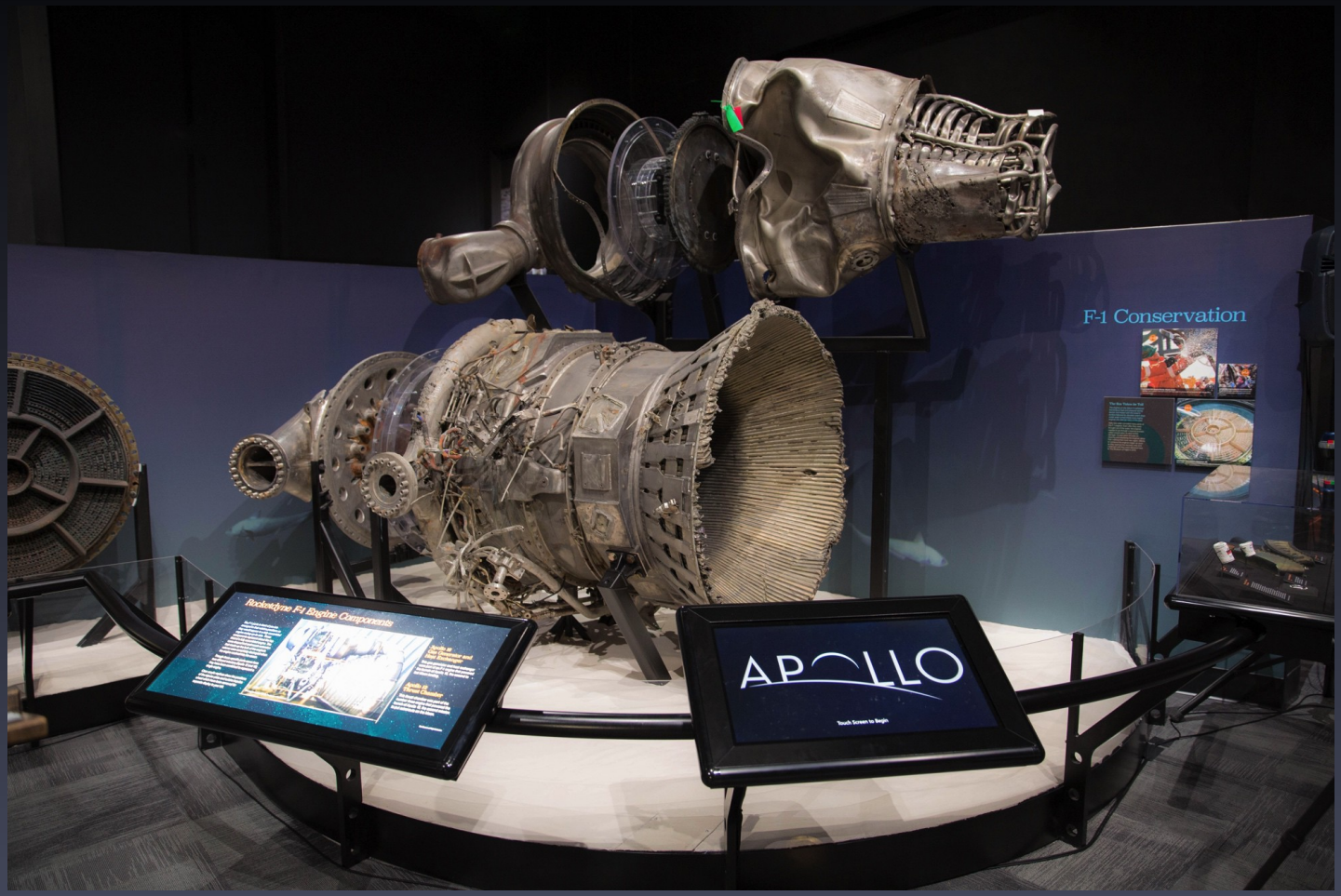

Bring ALL Apollo 11
APOLLO 11
home!


SWIRE SEABED


SEABED WORKER
SWIRE SEABED
SEABED WORKER


PROJECT APOLLO
CHARIOT TO THE MOON
MAGNIFICENT DESOLATION
EARTHRISE

It takes teamwork to be successful!


F-1 Conservation
Rocketdyne F1 Engine Components
APOLLO
Touch Screen to Begin

For additional information, please visit:

- www.explorerconsulting.com
- www.bezosexpeditions.com