

OUR NEIGHBORHOOD

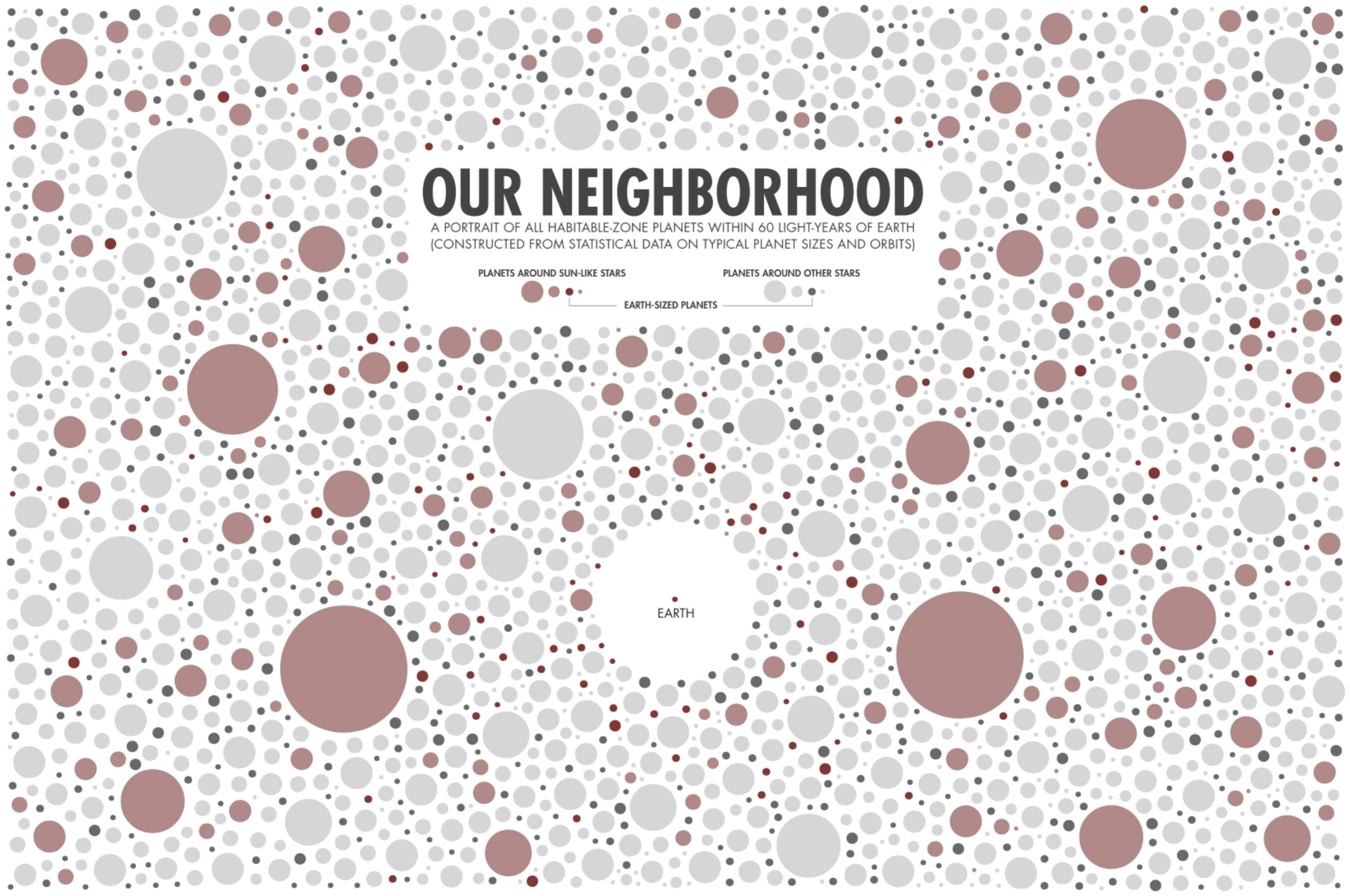
A PORTRAIT OF ALL HABITABLE-ZONE PLANETS WITHIN 60 LIGHT-YEARS OF EARTH
(CONSTRUCTED FROM STATISTICAL DATA ON TYPICAL PLANET SIZES AND ORBITS)

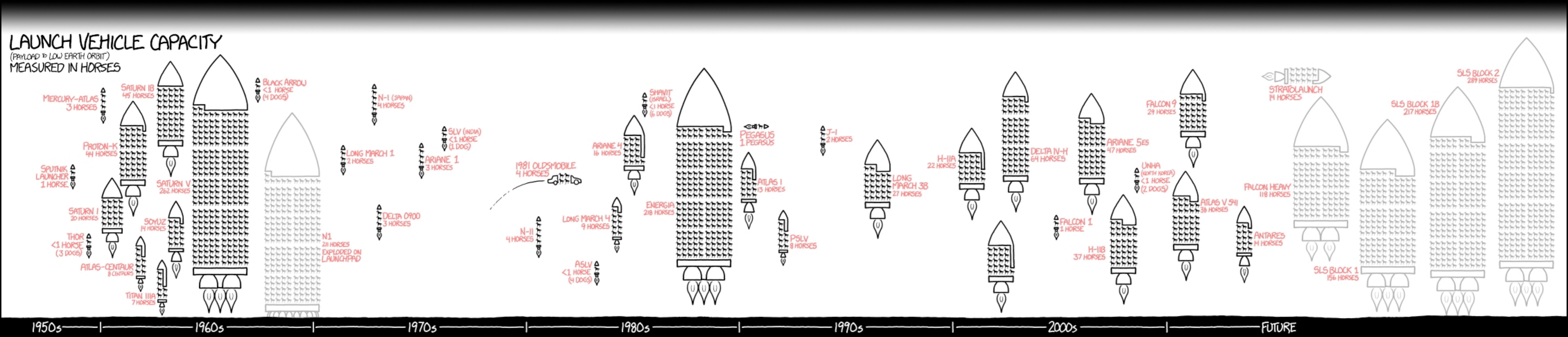
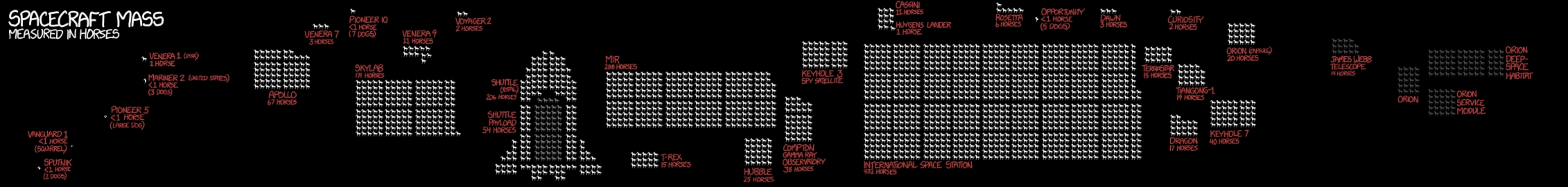
PLANETS AROUND SUN-LIKE STARS

PLANETS AROUND OTHER STARS

EARTH-SIZED PLANETS

EARTH





GRAVITY WELLS

SCALED TO EARTH SURFACE GRAVITY

THIS CHART SHOWS THE "DEPTH" OF VARIOUS SOLAR SYSTEM GRAVITY WELLS.

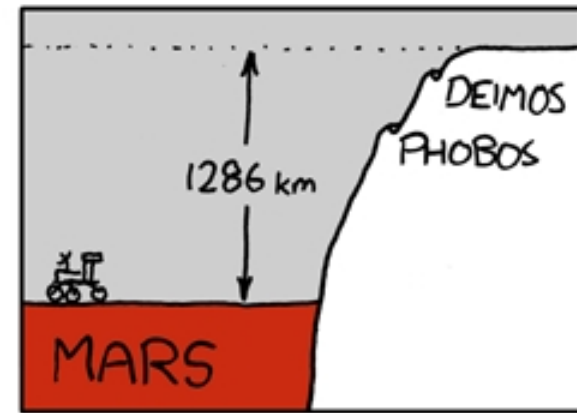
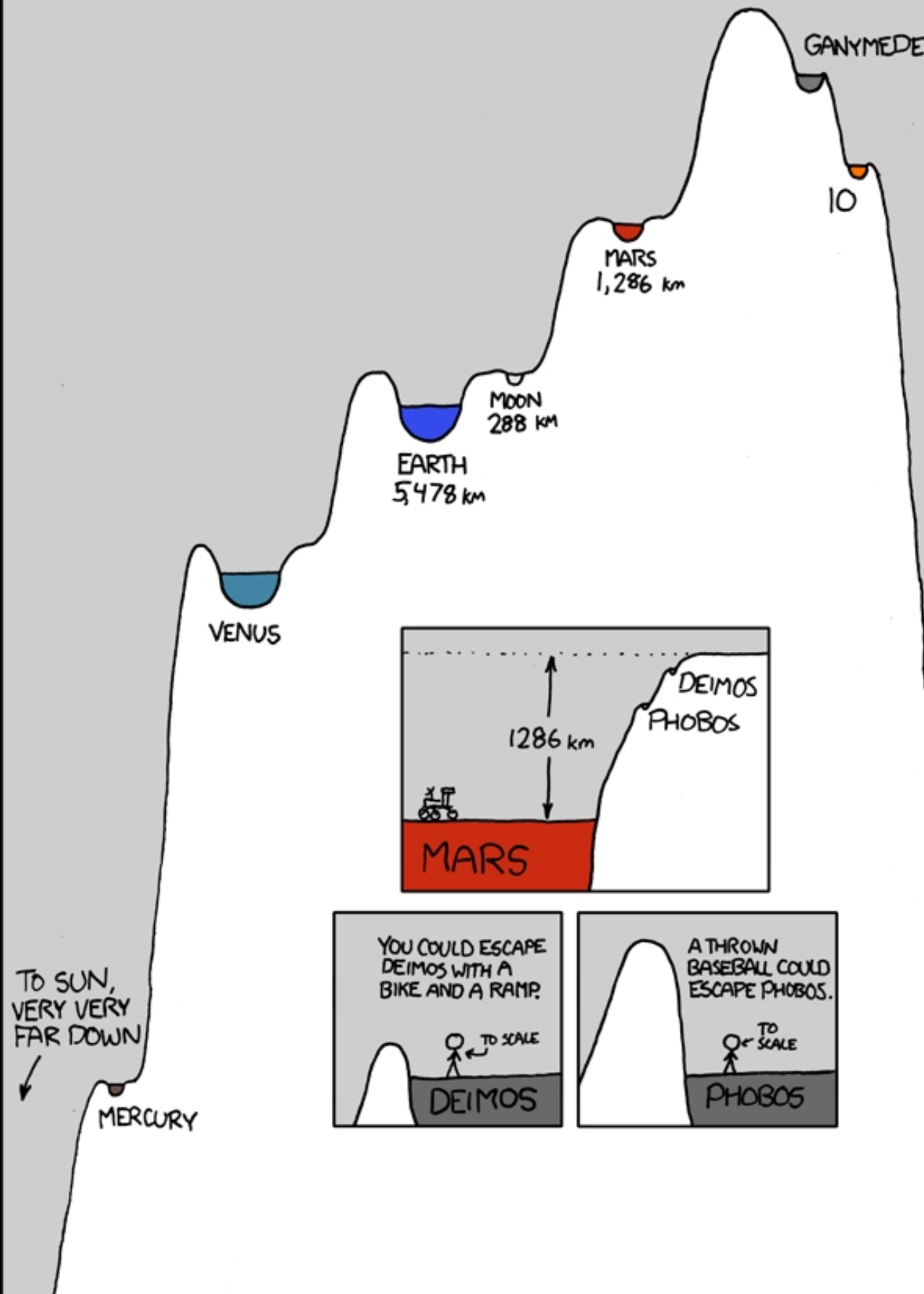
EACH WELL IS SCALED SUCH THAT RISING OUT OF A PHYSICAL WELL OF THAT DEPTH — IN CONSTANT EARTH SURFACE GRAVITY — WOULD TAKE THE SAME ENERGY AS ESCAPING FROM THAT PLANET'S GRAVITY IN REALITY.

EACH PLANET IS SHOWN CUT IN HALF AT THE BOTTOM OF ITS WELL, WITH THE DEPTH OF THE WELL MEASURED DOWN TO THE PLANET'S FLAT SURFACE.

THE PLANET SIZES ARE TO THE SAME SCALE AS THE WELLS. INTERPLANETARY DISTANCES ARE NOT TO SCALE.

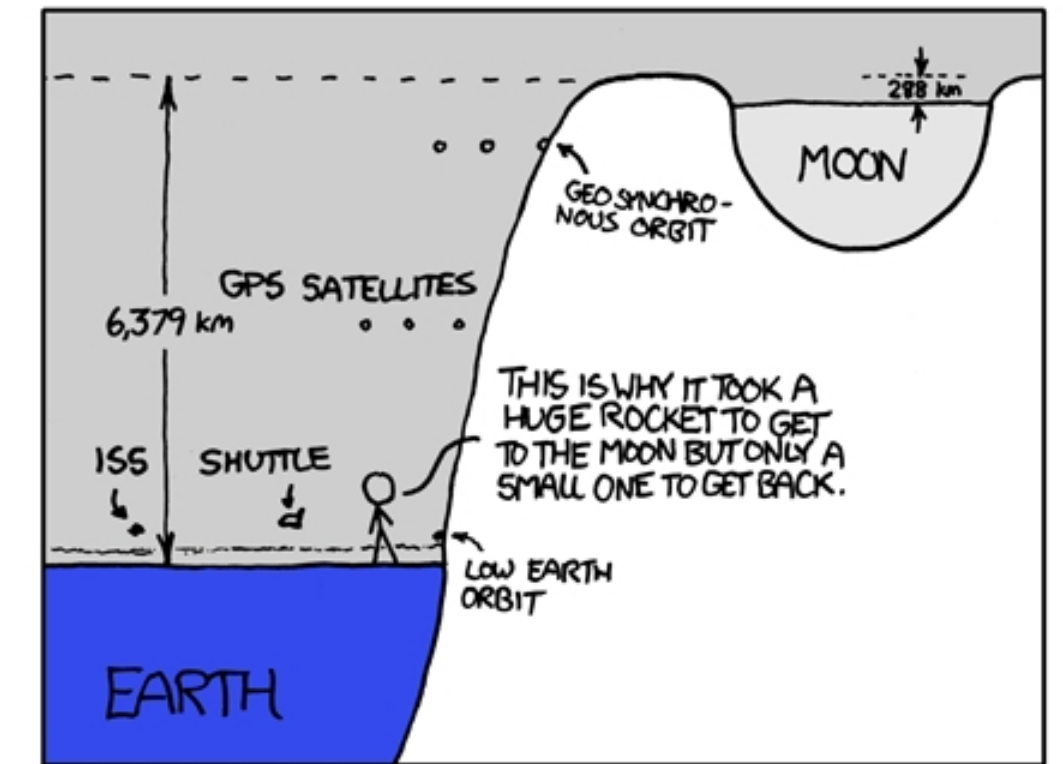
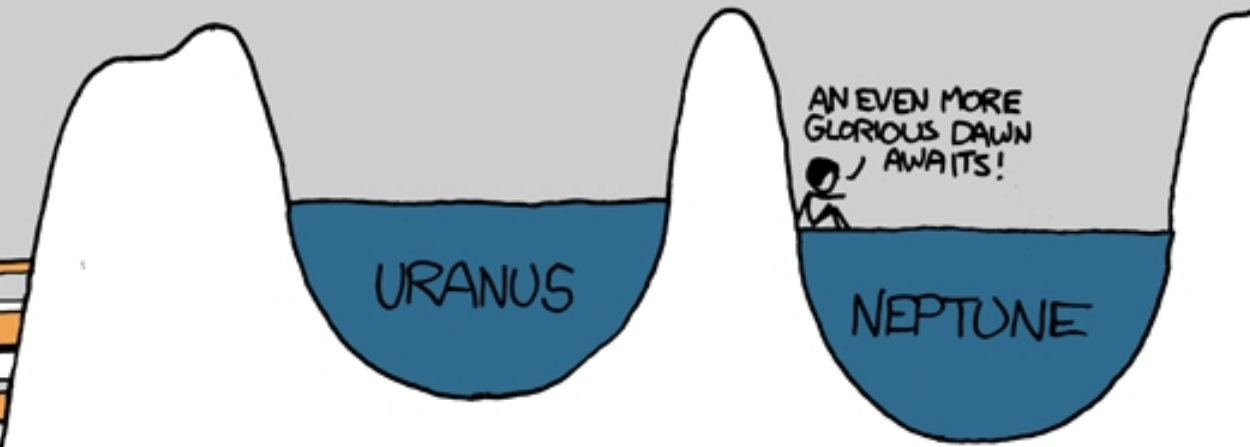
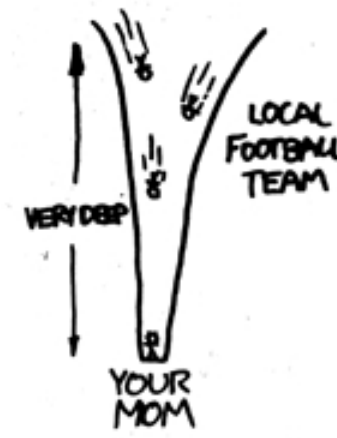
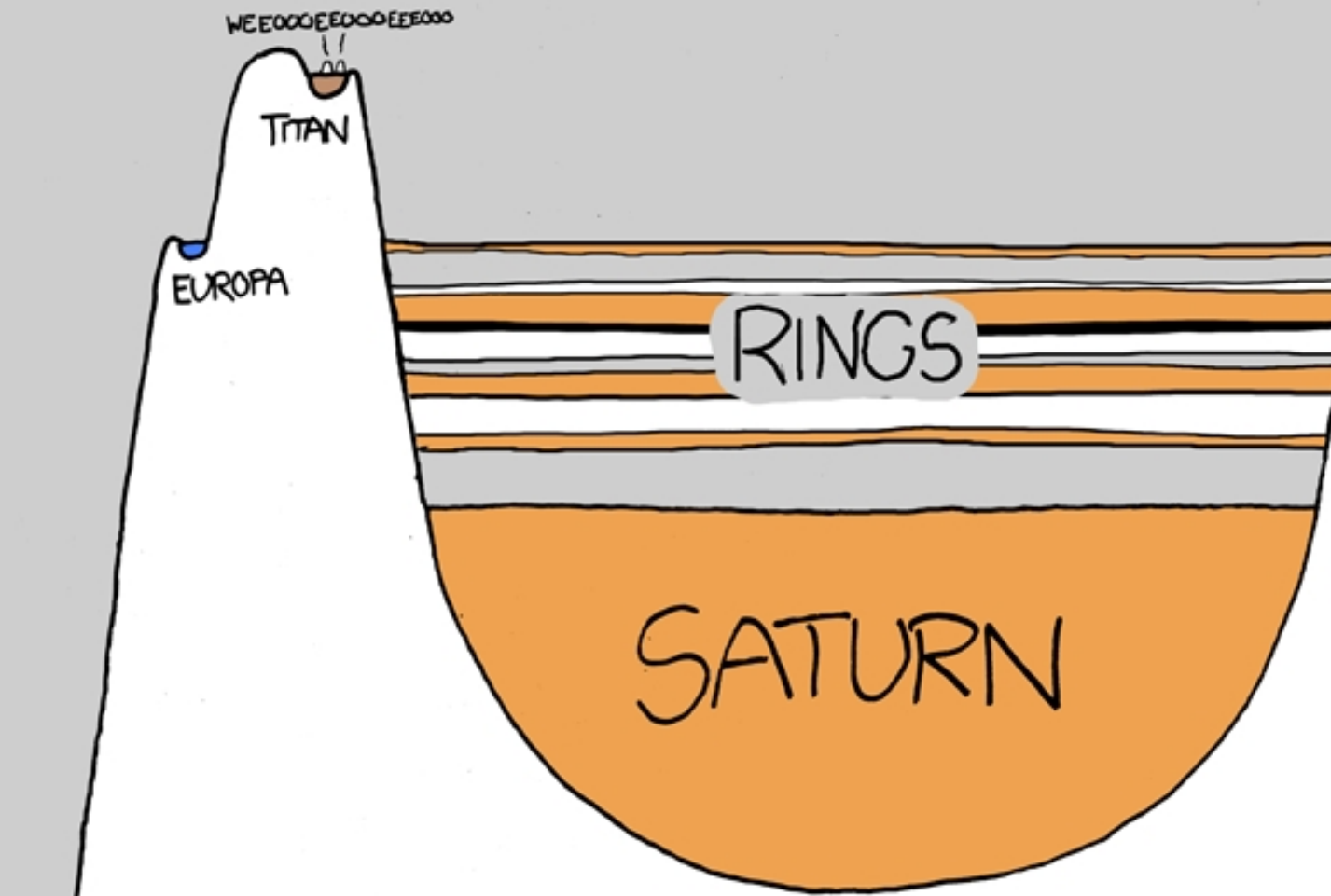
$$\text{DEPTH} = \frac{G \times \text{PLANET MASS}}{g \times \text{PLANET RADIUS}}$$

G = NEWTON'S CONSTANT
g = 9.81 m/s²



JUPITER IS NOT MUCH LARGER THAN SATURN, BUT MUCH MORE MASSIVE. AT ITS SIZE, ADDING MORE MASS JUST MAKES IT DENSER DUE TO THE EXTRA SQUEEZING OF GRAVITY.

IF YOU DROPPED A FEW DOZEN MORE JUPITERS INTO IT, THE PRESSURE WOULD IGNITE FUSION AND MAKE IT A STAR.

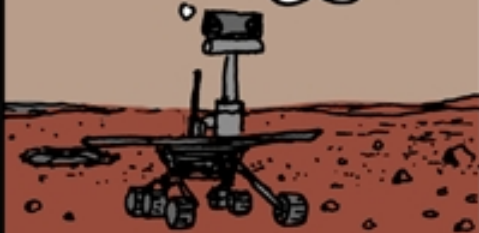


IT TAKES THE SAME AMOUNT OF ENERGY TO LAUNCH SOMETHING ON AN ESCAPE TRAJECTORY AWAY FROM EARTH AS IT WOULD TO LAUNCH IT 6,000 km UPWARD UNDER CONSTANT 9.81 m/s² EARTH GRAVITY.

HENCE, EARTH'S WELL IS 6,000 km DEEP.

DAY 1 OF 90

89 DAYS TO GO!



DAY 88 OF 90

TWO DAYS UNTIL I GO HOME!



DAY 91 OF 90

?



DAY 103 OF 90

MAYBE I DIDN'T DO A GOOD ENOUGH JOB.



DAY 127 OF 90

MAYBE IF I DO A GOOD ENOUGH JOB, THEY'LL LET ME COME HOME.



DAY 857 OF 90

I THOUGHT I ANALYZED THAT ROCK REALLY WELL.

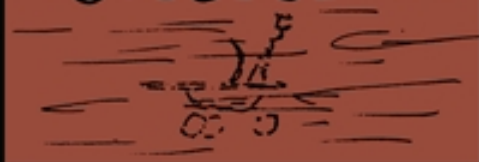
IT'S OKAY, I'LL DO THE NEXT ONE BETTER.



DAY 1328 OF 90

SANDSTORM. POWER DYING.

BUT A GOOD ROVER WOULD KEEP GOING. A GOOD ROVER LIKE THEY WANTED.



DAY 1944 OF 90

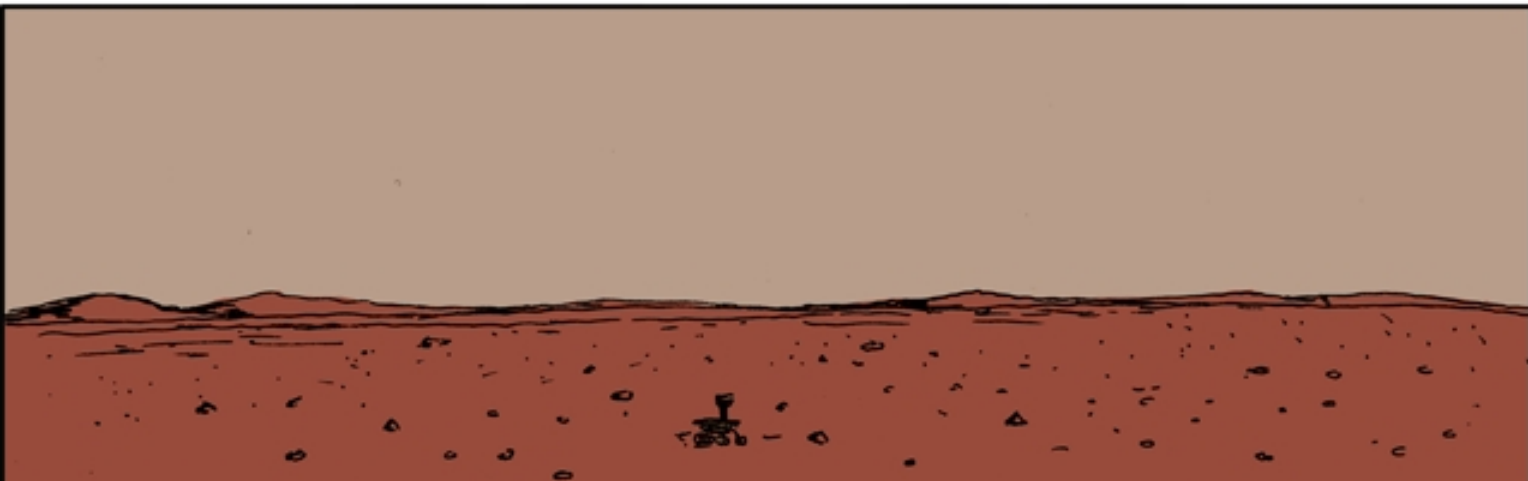
OH, NO.

I'M STUCK.



DID I DO A GOOD JOB?
DO I GET TO COME HOME?

GUYS?



2010:

AFTER SIX YEARS, SPIRIT IS DOWN, BUT OPPORTUNITY IS STILL GOING STRONG.

TOUGH LITTLE ROVER!



2015:

ELEVEN YEARS, WOW!

WASN'T THE ORIGINAL MISSION 90 DAYS?

THIS IS STARTING TO GET WEIRD.



2023:

THE BATTERY IS TOTALLY DISCONNECTED. HOW CAN IT STILL BE MOVING??

GIVEN WHAT IT DID TO THE MARS 2020 ROVER, WE MAY NEVER KNOW.



2450, TERRAFORMED MARS, MARTIAN IMPERIAL CAPITAL:

EVERYTHING THE LIGHT TOUCHES IS OUR KINGDOM.

WHAT'S THAT DARK AREA?
THAT IS OPPORTUNITY'S HALF OF THE PLANET.
WE MUST NEVER GO THERE.

