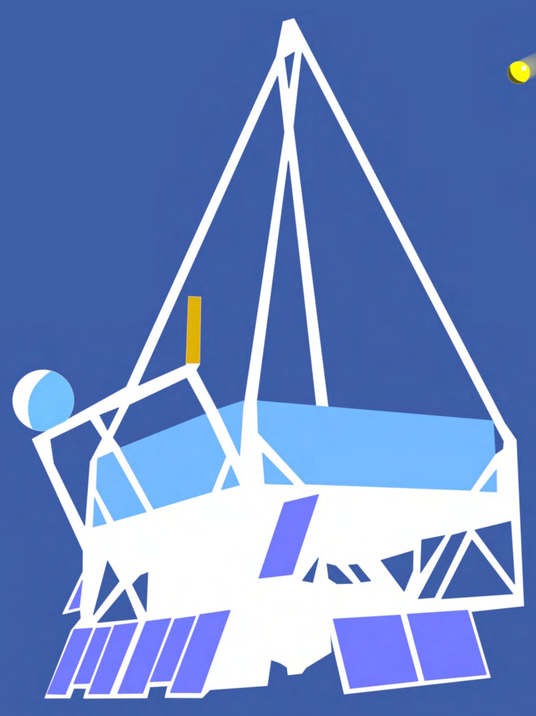
SuperTIGER

Catching heavy cosmic rays



Electrons
1 percent

Hydrogen nuclei (protons)
90 percent

Helium nuclei
8 percent

Heavier nuclei
1 percent

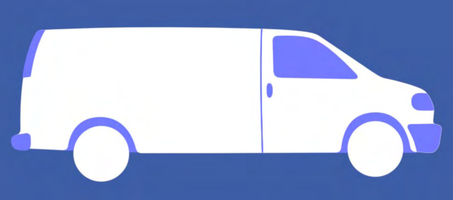
Cosmic ray particles

Cosmic rays are particles from far outside the solar system traveling at up to nearly the speed of light. SuperTIGER seeks heavy atomic nuclei ranging from neon to barium.

1 H hydrogen																	2 He helium
3 Li lithium	4 Be beryllium											5 B boron	6 C carbon	7 N nitrogen	8 O oxygen	9 F fluorine	10 Ne neon
11 Na sodium	12 Mg magnesium											13 Al aluminium	14 Si silicon	15 P phosphorus	16 S sulfur	17 Cl chlorine	18 Ar argon
19 K potassium	20 Ca calcium	21 Sc scandium	22 Ti titanium	23 V vanadium	24 Cr chromium	25 Mn manganese	26 Fe iron	27 Co cobalt	28 Ni nickel	29 Cu copper	30 Zn zinc	31 Ga gallium	32 Ge germanium	33 As arsenic	34 Se selenium	35 Br bromine	36 Kr krypton
37 Rb rubidium	38 Sr strontium	39 Y yttrium	40 Zr zirconium	41 Nb niobium	42 Mo molybdenum	43 Tc technetium	44 Ru ruthenium	45 Rh rhodium	46 Pd palladium	47 Ag silver	48 Cd cadmium	49 In indium	50 Sn tin	51 Sb antimony	52 Te tellurium	53 I iodine	54 Xe xenon
55 Cs caesium	56 Ba barium	57–71 lanthanoids	72 Hf hafnium	73 Ta tantalum	74 W tungsten	75 Re rhenium	76 Os osmium	77 Ir iridium	78 Pt platinum	79 Au gold	80 Hg mercury	81 Tl thallium	82 Pb lead	83 Bi bismuth	84 Po polonium	85 At astatine	86 Rn radon
87 Fr francium	88 Ra radium	89–103 actinoids	104 Rf rutherfordium	105 Db dubnium	106 Sg seaborgium	107 Bh bohrium	108 Hs hassium	109 Mt meitnerium	110 Ds darmstadtium	111 Rg roentgenium	112 Cn copernicium	113 Nh nihonium	114 Fl flerovium	115 Mc moscovium	116 Lv livermorium	117 Ts tennessine	118 Og oganesson

SuperTIGER is a souped-up version of the Trans-Iron Galactic Element Recorder (TIGER) detector that flew in 1998, 2001 and 2003.

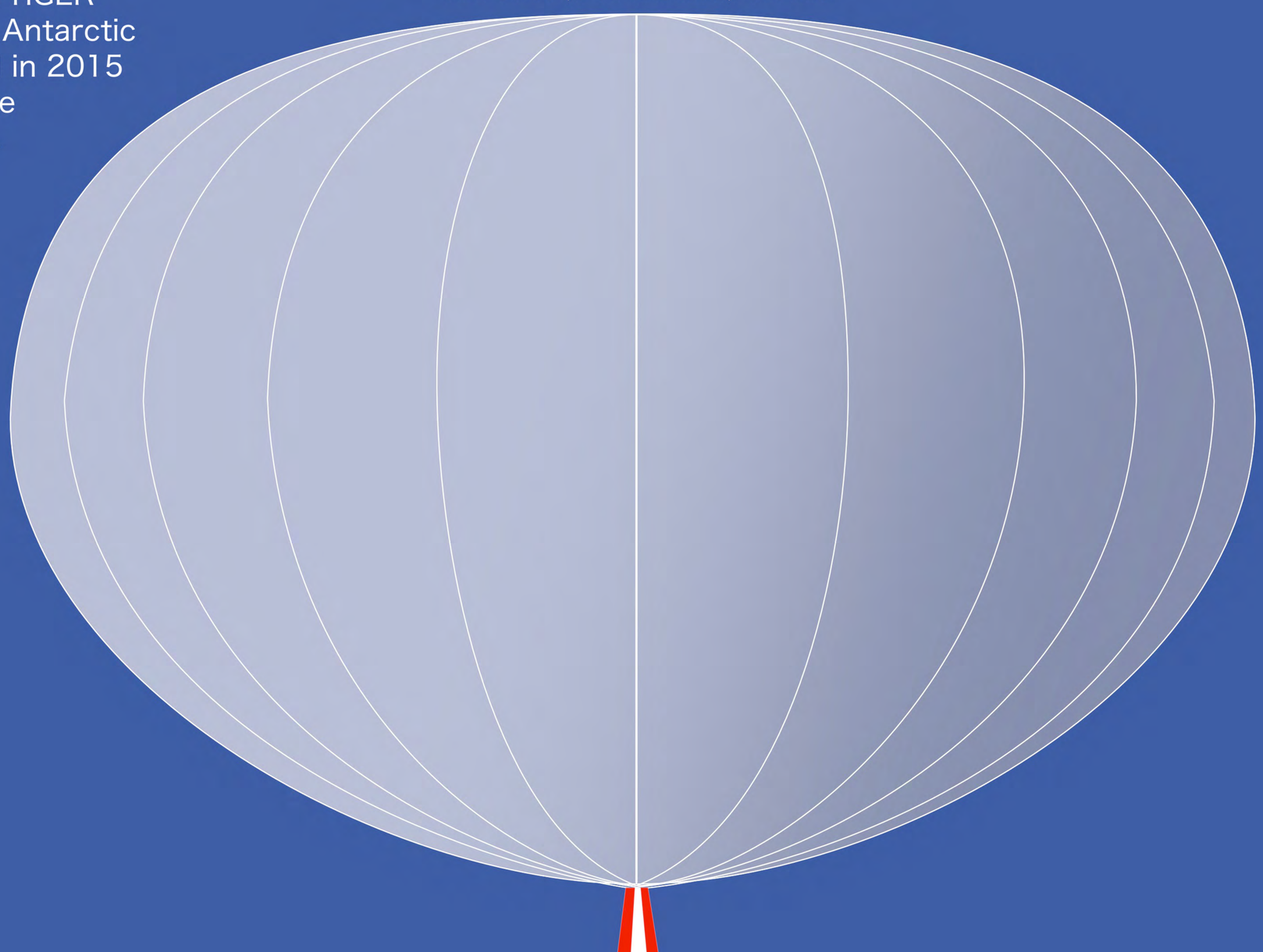
Balloon at launch
856 feet (261 meters) tall

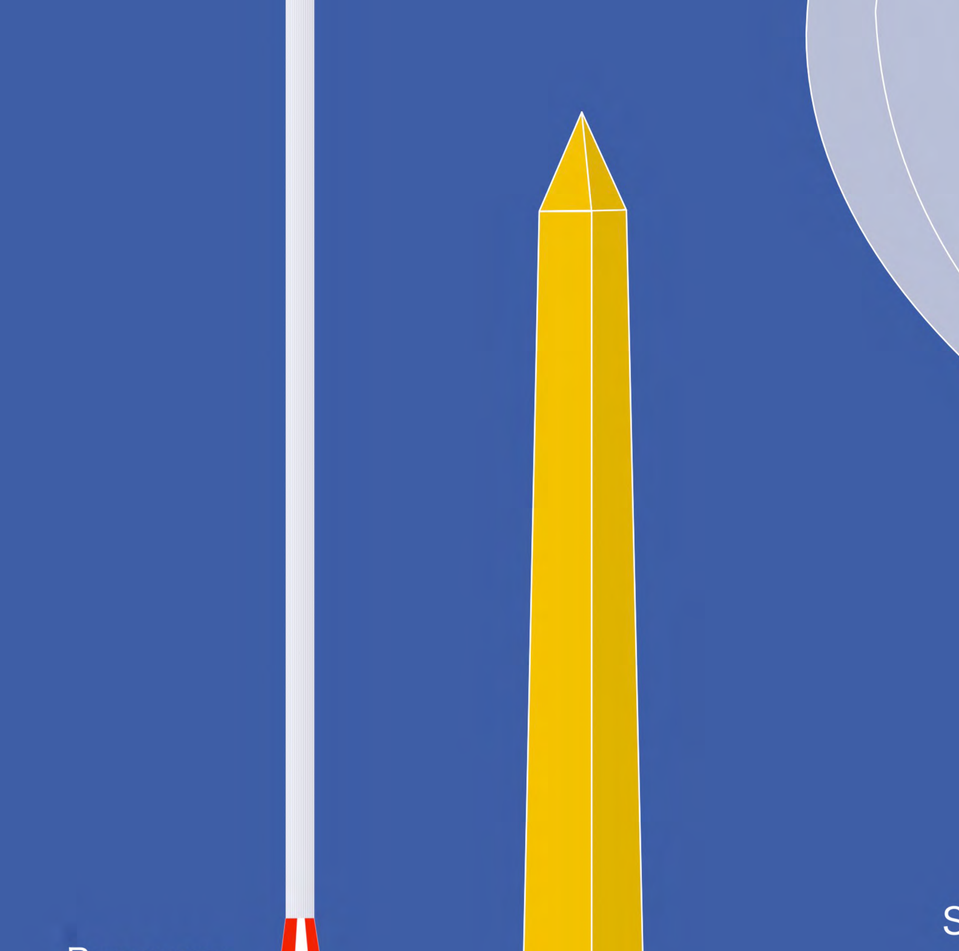


SuperTIGER and its supporting hardware weighs 6,000 pounds (2,700 kilograms), comparable to a full-size van.

After its previous flight ended in 2013, SuperTIGER spent 2 years on the Antarctic ice. It was recovered in 2015 and prepped for more scientific adventures.

Balloon at altitude
460 feet (140 meters) across





SuperTIGER reaches a maximum height of about 127,000 feet (39,000 meters).

That's nearly four times the typical cruising altitude of commercial airliners...

...and above 99.5 percent of the atmosphere.

National Aeronautics and Space Administration

www.nasa.gov