

# A Space Vision for the Next 100 Years

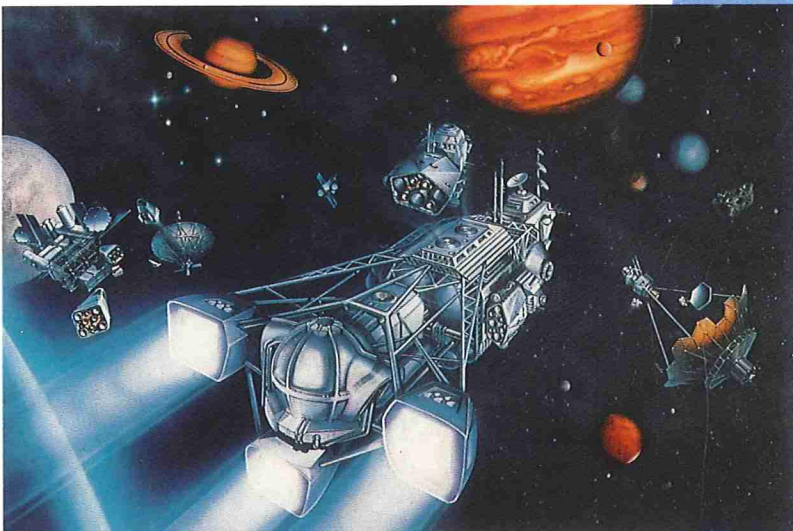
← 1990's

2090's →



## Epoch I

In Earth orbit, the space shuttle and a National Aero-Space Plane service the space station. On the left, the Tracking and Data Relay Satellite System (TDRSS) provides communications between all space platforms and Earth. Above the space shuttle, the Earth Observation Satellite monitors ecosystems as part of its "Mission to Planet Earth." On the Moon, a base colony has been established to mine lunar resources such as Helium-3, which will be transported back to Earth to fuel-safe, nonpolluting, nonradiating, nuclear-fusion, electrical power plants. These nuclear-fusion plants will solve our massive power needs as we exhaust our fossil fuels over the next 50 years. One space shuttle load of Helium-3 will electrically power the United States for one year with a market value today of \$75 billion. Little Helium-3 is found on Earth, but there is a several-thousand-year supply of it on the Moon. The self-sustaining lunar base will also serve as a research center, an observation post for the universe, and a launch pad for missions to Mars.



## Epoch II

In the foreground, a spacecraft propelled by a Helium-3, nuclear-fusion-powered, ion-driven propulsion system sets course for a planet-hopping mission throughout our solar system. Its mission includes orbiting various planets and their moons, then sending landers (one is seen lifting off the mother craft's back) to survey and categorize their resources for later exploitation. One resource might be additional sources of Helium-3. On the left, in Earth orbit, an expanded space station is being serviced by three single-stage-to-orbit vehicles and an advanced space shuttle (possibly an aerospace plane). Close by, a radio-frequency remote sensor (the follow-on to the planned Earth Observation Satellite) and, on the right, a large optical telescope (evolved from the current Hubble Space Telescope) scan the closest stars, searching for planets that would most likely support life—setting the stage for our "giant leap" to the stars.



## Epoch III

In about the middle of the 21st century, we have launched from Earth an interstellar vehicle that after a 25 trillion-mile, 16-year journey is shown approaching a planet in the Alpha Centauri star cluster. The spacecraft slowly accelerated to one-half the speed of light (90,000 miles per second) at the halfway point; then decelerated to Alpha Centauri, providing partial artificial gravity. The spacecraft is powered by a Helium-3, nuclear-fusion-powered, matter/antimatter annihilation propulsion system, and weighs approximately one million pounds. The huge starship's remote sensors have detected indications of life and a manned lander is shown enroute to the planet's surface for humankind's historic first encounter with long-searched-for and often-dreamed-of "new life." Even this "giant leap for mankind" is only "one small step for man" in the endless exploration of our galaxy and the universe.



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