

ASTR 4800 - Space Science: Practice & Policy
 Today: **The Kennedy Vision for the US Space Program**

Reading for next class on **The Apollo Program:**
 McDougall, Chapter 19, Part V (Conclusions), and Chapter 20.



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Space in the News: Why the molten salt reactor should be our next big step for terrestrial and off-planet needs

Presented by Anna Casillas

- Thorium Molten Salt Reactor (TMSR) runs at sea pressure
- Thorium naturally occurring radioactive element, very abundant, and leaves only 1% of radioactive isotopes behind
- Potential to meet Earth's energy needs and for propulsion in the upper stages



Why isn't the US Department of Energy funding thorium reactor designs?

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Impact of Human Space Programs

- Further prompted US to action => "awakened a sleeping giant".
- Soviets wanted "U.S. to treat us better" according to Khrushchev.
- Why did Soviet program ultimately fail?
 - No equivalent of NASA (Soviet mostly military).
 - Soviets were really behind in space technologies (USSR press was a bluff!).
 - U.S. dramatically outspent the USSR.
 - Soviets never truly committed to a Moon program.



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John F. Kennedy
 (1917-1963)



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Class Exercise

Deconstruct the Kennedy speech at Rice University from 1962. What were his goals and did he succeed?



"We choose to go to the Moon! We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard."

John F. Kennedy

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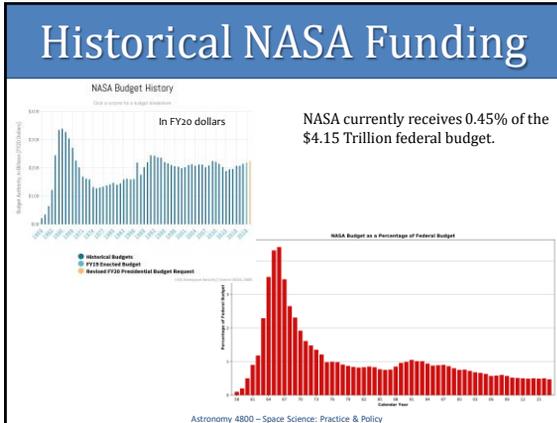
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Reactions to Kennedy's 1962 Speech at Rice University

- A new generation with youth, ideas, vision, and boldness.
- Technology as a means to shape not only the space program but society.
- Apply **command and control** methodology to political and social problems.
- **Investment.** NASA budget climbed to \$5.9 billion in 1966 (≈\$52B in FY22). Total NASA budget was 4% of GDP (GDP = Gross Domestic Product = The total market value of all final goods and services produced in a country in a given year, equal to total consumer, investment, and government spending, plus the value of exports, minus the value of imports).

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NASA Administrator James E. Webb (1906-1992)

[Audio of JFK & Webb debate Moon Program](#)

2nd NASA Administrator 1961-68

Saturn V rocket

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James Webb's Vision of NASA

- New management tools for large projects => apply to all R&D. **Central Planning**. Today called "Systems Engineering".
- Manned spaceflight as *THE focus* of NASA (although science also did well).
- Prestige, cooperation, socioeconomic systems.
- A driver for the economy. Transform the national economy to high tech. Spin-offs.
- Template for implementing social change => Johnson's *Great Society*.

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