# South Dakota NASA EPSCoR


## *Strengthening South Dakota's Research Infrastructure*

### GOALS AND ORGANIZATION

- NASA EPSCoR (Established Program to Stimulate Competitive Research) provides seed funding to jurisdictions that have traditionally been underrepresented in federal funding for research and development in aerospace and related fields.
- The South Dakota NASA EPSCoR program leverages these NASA funds in order to improve research capacity in science and engineering fields that are critical to NASA's mission and to promote science- and technology-based economic development in the state.
- The NASA EPSCoR program is administered through the South Dakota NASA Space Grant Consortium. The consortium's 29-member network includes public, private, and tribal universities; informal science centers; industry partners; and state and federal government agencies such as the Sanford Laboratory at Homestake and the USGS EROS Data Center.

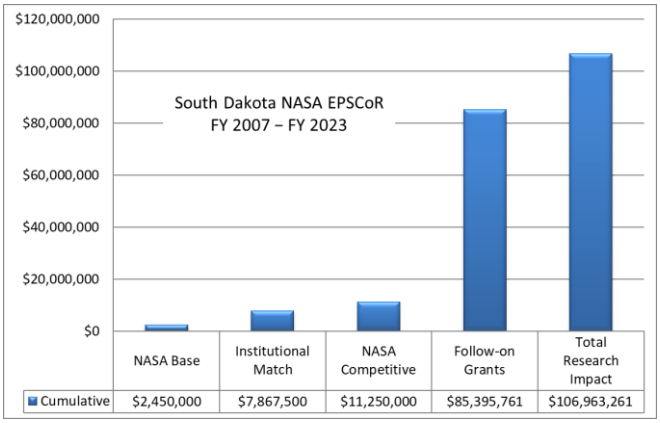
### PROGRAM COMPONENTS

NASA EPSCoR funding to states has two separate components:

- Research Infrastructure Development (RID) awards provide ***base funding*** of $200,000 per year and promote research collaborations through seed grants and travel to NASA Centers. RID funding also supports research collaborations between tribal universities and the state's public and private universities.
- Nationally ***competitive major Research Awards*** of $750,000 for a three-year period support specific research projects that align with state and NASA priorities.

### LEVERAGE AND RETURN ON INVESTMENT

- Over the period 2007–2023, NASA EPSCoR funds were matched with non-federal funds at an average rate of 60%. This cost-sharing plus competitive NASA grants and other follow-on grants gives a return on investment of more than 40 dollars for every dollar of NASA base funding.




### SD NASA EPSCoR OPPORTUNITIES

- Seed grants (Research Initiation Grants; $20,000–$50,000)
- Travel grants to NASA centers or aerospace contractors
- Tribal College collaboration grants ($5000–$20,000)
- Major Research Awards (nationwide competition among EPSCoR jurisdictions; $750,000 over three years)

### PROGRAM PERFORMANCE (2007–2023)

NASA base (RID) funds supported:

- Administrative salaries: less than $55,000 per year (less than 0.5 FTE)
- 28 research seed grants ($895,000)
  - five state institutions and five NASA centers
- Seven Tribal College collaboration grants ($88,500)
  - Oglala Lakota College, Sinte Gleska University, SD School of Mines & Technology, SD State University
- 97 research planning trips
  - 165 state researchers, nine NASA centers, one aerospace contractor, one national lab

NASA competitive funds included:

- Fourteen NASA EPSCoR Research Awards ($10.5 million NASA funds); multi-university, interdisciplinary research on:
  - nanotechnology for advanced materials, fluids, chemical sensors, and advanced batteries
  - structural thermal composites for space habitats
  - new photovoltaic devices and flexible electronics for space applications and health monitoring
  - satellite monitoring of land cover change related to changes in climate and agricultural practices
- Five Rapid Response Research awards ($500,000)
- Minority Serving Institution Faculty Engagement grant ($250,000; Oglala Lakota College, SD School of Mines & Technology, SD State University)

### IMPACT ON RESEARCH INFRASTRUCTURE

The combined impact of NASA base funding and competitive awards for the period 2007–2023 includes:

- 132 faculty and 32 post-doctoral researchers
- 301 graduate students and 251 undergraduates
- 467 peer-reviewed journal articles
- 693 other publications and presentations
- 10 patent applications; 4 patents; 2 start-up companies
- $182,319 new research equipment (NASA funds)
- 404 external collaborations (NASA, other federal, academia, industry)
- More than $85 million in follow-on grants
  - NASA, NSF, NIH, DOT, DOD (ARL, AFRL, DARPA), USDA, USGS, EPA, Bur. of Reclamation, state (BOR, GOED), ACS, industry and agricultural commodity groups, universities