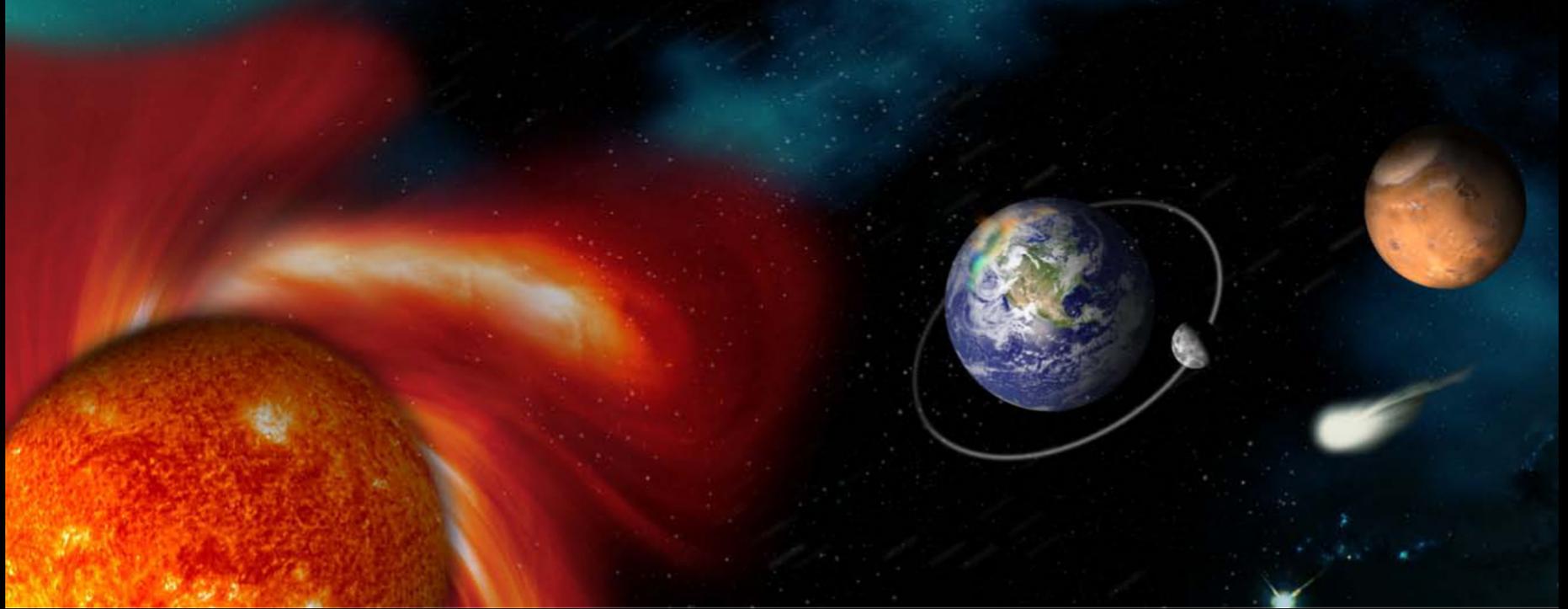


The Societal and Economic Impacts of Severe Space Weather Events

D. N. Baker, LASP / University of Colorado

Howard Singer, NOAA SEC

Arthur Charo, National Research Council



Task

- An ad hoc committee of the Space Studies Board (SSB) of the National Academies will convene a workshop to assess the Nation's current and future ability to manage space weather events and their societal and economic impacts.
 - What are the socioeconomic consequences to the Nation of severe space weather events?
 - How likely are events more intense than the 2003 Halloween storms and what might be the consequences of such events?
 - Are there specific ground- or space-based sensors or other approaches that might mitigate or avoid the effects of future severe space weather events?

Support from NASA/SMD in place; other agencies likely

Approach

- Phase I: Workshop

- Late October 2007
- Representatives from academia, industry, and industry associations
 - Associations can aggregate data and avoid concerns about proprietary or competition-sensitive data
- Analysis in specific areas: e.g., GPS, power industry, aviation, human and robotic exploration beyond low-Earth orbit
- Econometric analysis of value of improved SpaceWx

Examples of Concerns

- Airborne Survey Data Collection: \$50,000 per day
- Marine Seismic Data Collection: \$80,000-\$200,000 per day
- Offshore Oil Rig Operation: \$300,000-\$1,000,000 per day (Courtesy R. Barker)



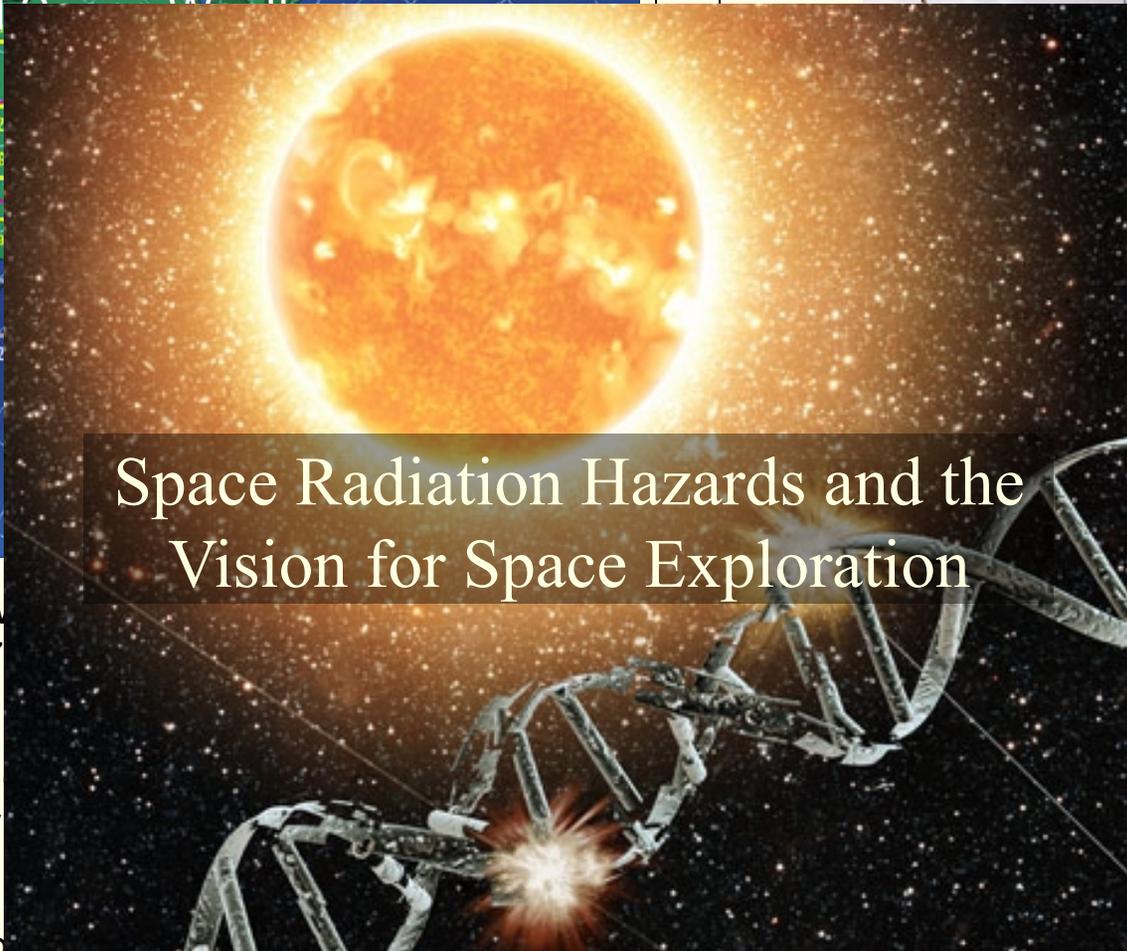
The advent of new
A340-500/600, B7

Next 6 Years:

Airlines operating
Number of weekly

Next 12 Years:

1.8 million polar route passengers by 2010



Space Radiation Hazards and the Vision for Space Exploration

g System



expected growth:

2000 - \$40 billion

2017 - \$757 billion

How to Measure the Value of Improved SWx Forecast?

- Identify decisions that can be improved using a reliable forecast
- Differences with and without forecast (the expected value of a forecast)
- When best design decisions are made
- Economic value of expected outcomes

Schedule

- Letter of request from NASA: January 2007
- Study approved by NRC: April 2007
- Between now and late October 2007
 - Formation of ad hoc study committee
 - Identify workshop sessions, session leads, and speakers
 - Hire consultant for the SWx economic analysis
- Report of the workshop: Spring 2008
- Potential Phase II study: TBD, 2008

Anticipated Benefits

- Economic Impacts analysis will provide:
 - Better guidance for policy makers on investment in SWx systems
 - Better rationale for Agency budgeting
 - Better understanding of “high-payoff” forecasts
 - Clearer guidance for future human exploration
 - Improved societal appreciation for SWx risks

Thank you—Questions?
