NASA'S COSMOS

NASA AISR GRANT NNX07AU93G

Principal Investigator: Kenneth R. Lang
Tufts University

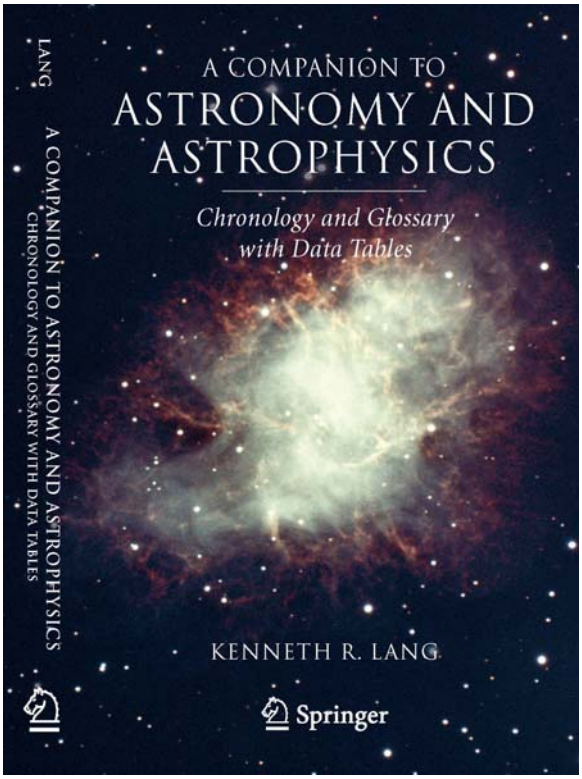
I. CENTRAL OBJECTIVES

- Present NASA scientific results to general public, space scientists, students and teachers by books, lectures and web site.

- Convey scientific credibility, historical authority, human interest and visual excitement of NASA Space Science.

II. PREVIOUS ACCOMPLISHMENTS 2004-6

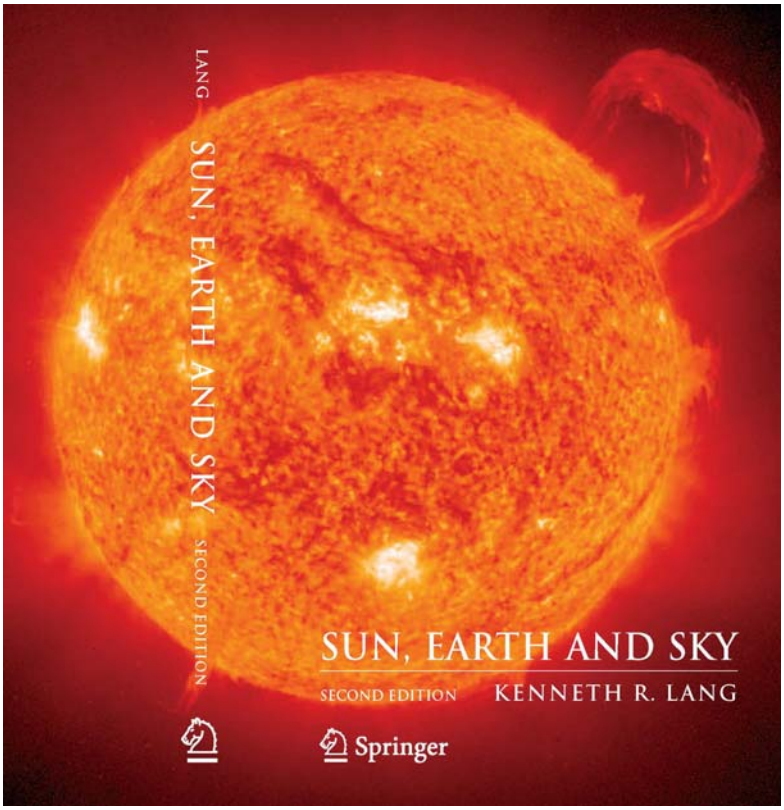
A. COMPANION TO ASTRONOMY AND ASTROPHYSICS, Springer 2006



- Comprehensive, fundamental, up-to-date reference book.

- Tables, line drawings, chronology, glossary and index that cross-references concepts, discoveries, ideas, people, history and time.

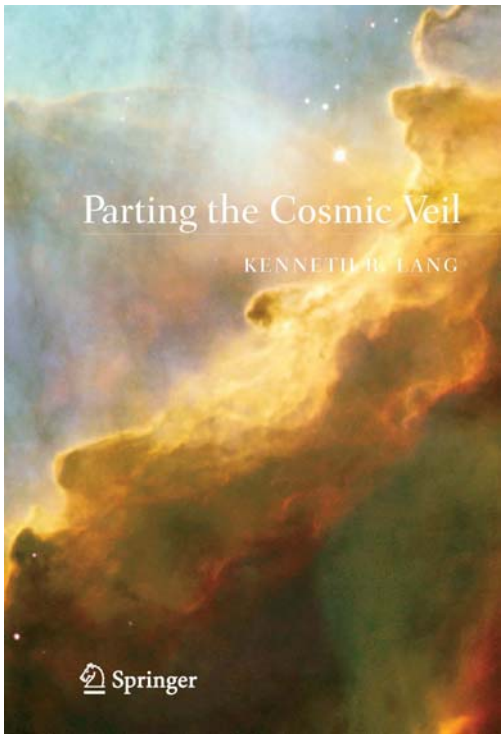
B. SUN, EARTH AND SKY, SECOND EDITION, Springer 2006



• Updates popular text, published in English, German and Japanese, to include five recent NASA solar missions.

• Includes helioseismology, solar neutrinos, heating of million-degree corona, solar explosions and space weather.

C. PARTING THE COSMIC VEIL, Springer 2006



- Describes discoveries of previously unknown and unseen aspects of the Cosmos, including NASA close-up views of moons and planets, discovery of exoplanets around other stars, cosmic radio and X-ray sources, three-degree microwave background, dark matter and dark energy.

- Universal themes – new worlds; motion, content and form; the violent Universe; the fullness of space; and origins and destinies.

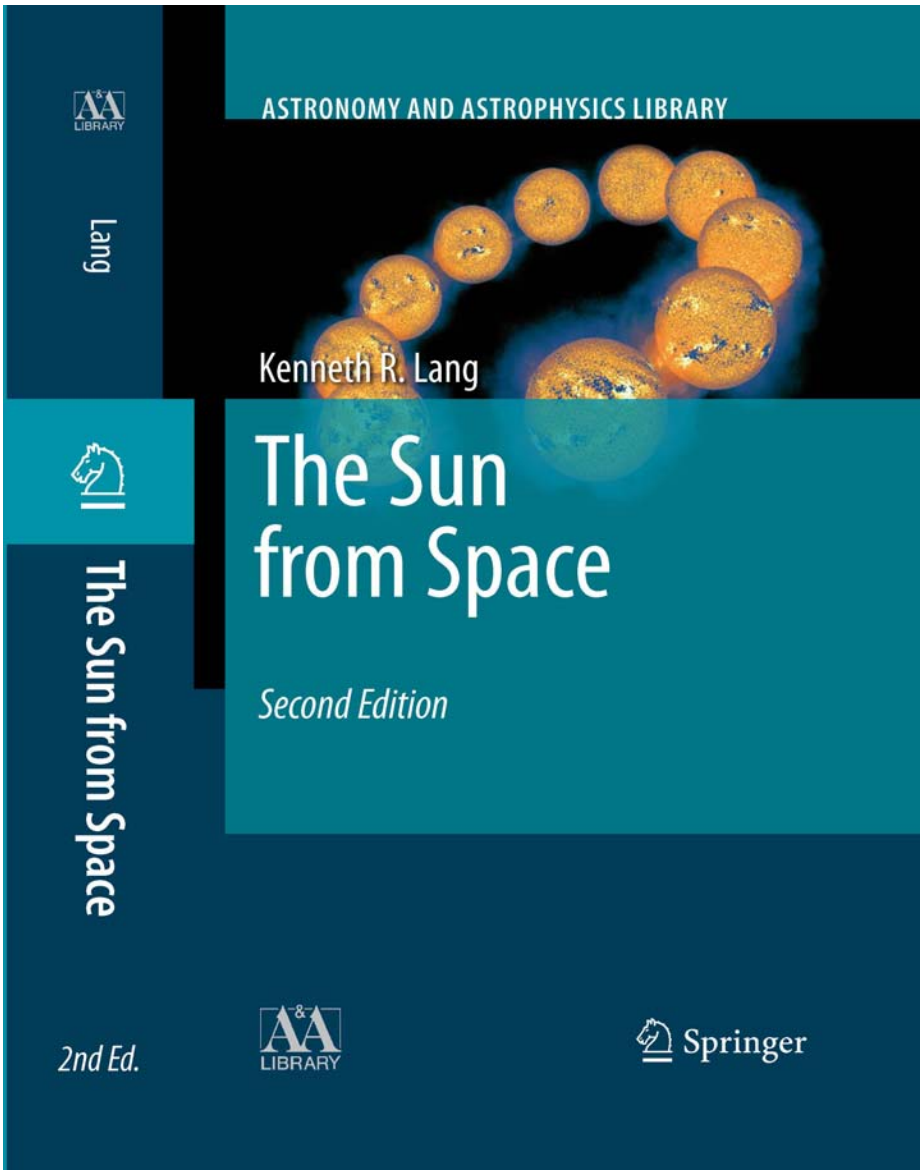
D. INVITED LECTURES

- Keynote speaker, Space Science: United Nations and Chinese Space Agency, Beijing 2004.

- Keynote speaker, Space Science: United Nations, ESA, NASA, and United Arab Emirates 2005.

III. RECENT ACCOMPLISHMENTS 2007-9

A. THE SUN FROM SPACE, SECOND EDITION Springer 2009



- Updates first edition to describe main scientific accomplishments of the *ACE*, *Hinode*, *RHESSI*, *SOHO*, *STEREO*, *TRACE*, *Ulysses*, *Wind* and *Yohkoh* missions.

- Accessible to all readers, from interested layperson to student or professional.

- Draft read by numerous experts in the field for accuracy and completeness.

- More than 2,500 references to seminal research articles and important reviews.

- Both hardcover and e-book versions, with electronic access to all 2,500 references.

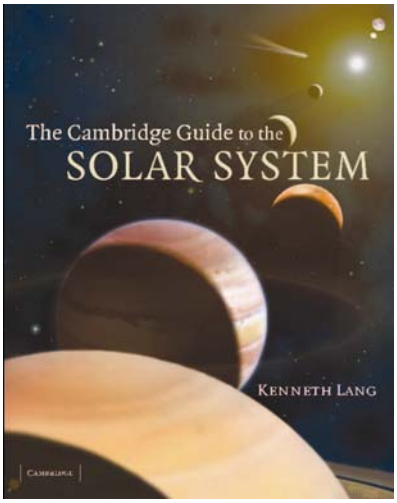
B. INVITED LECTURES

- Overview of Solar Missions, IAU, Malaysia 2007.

- Astronomical Discovery, IAU, Venice, Italy 2009.

IV. FUTURE WORK 2010-12

A. CAMBRIDGE GUIDE TO THE SOLAR SYSTEM, SECOND EDITION



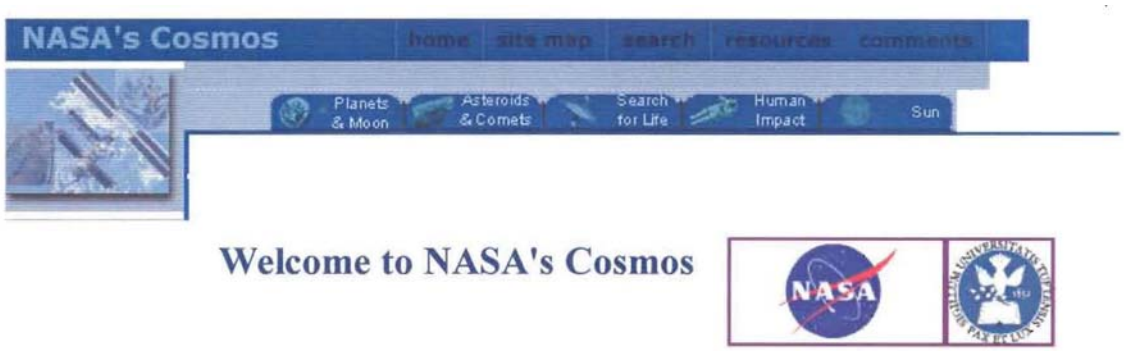
- First edition (2003) describes NASA investigations of moons and planets.

- First edition (2003) used as university textbook.

- Second edition (2010-11) will update text to include the seminal results of the *Cassini-Huygens*, *Dawn*, *Deep Impact*, *Galileo*, *Kepler*, *Mars Express*, *Mars Exploration Rovers*, *Mars Odyssey*, *Mars Reconnaissance Orbiter*, *MESSENGER (*Mercury*)*, *New Horizons (*Pluto*)*, *Phoenix Mars Lander*, *Rosetta*, *SMART*, *Stardust*, and *Voyager* (edge of solar system) missions.

B. NASA'S COSMOS WEB SITE

- http://ase.tufts.edu/cosmos/



NASA's Cosmos provides comprehensive accounts of the most recent discoveries about the planets, their satellites, the Sun, and other bodies in the solar system, based primarily on NASA space missions. Funding for this site is provided by NASA's Applied Information System Research Program.

To explore the five main segments of NASA's Cosmos - **Planets and Moons**, **Asteroids and Comets**, **Search for Life**, **Human Impact**, **Sun** - click on the appropriate navigation tab above.

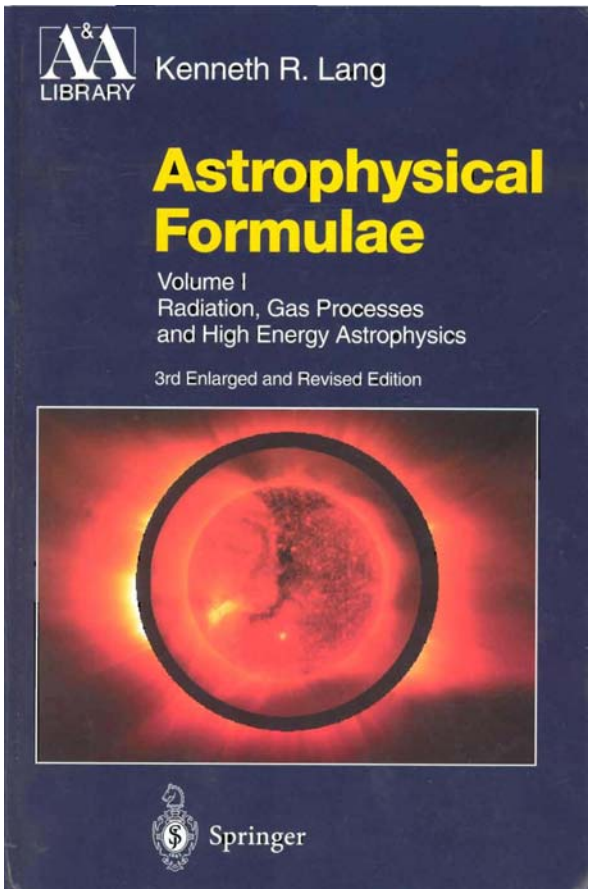
Within each of these tabs:

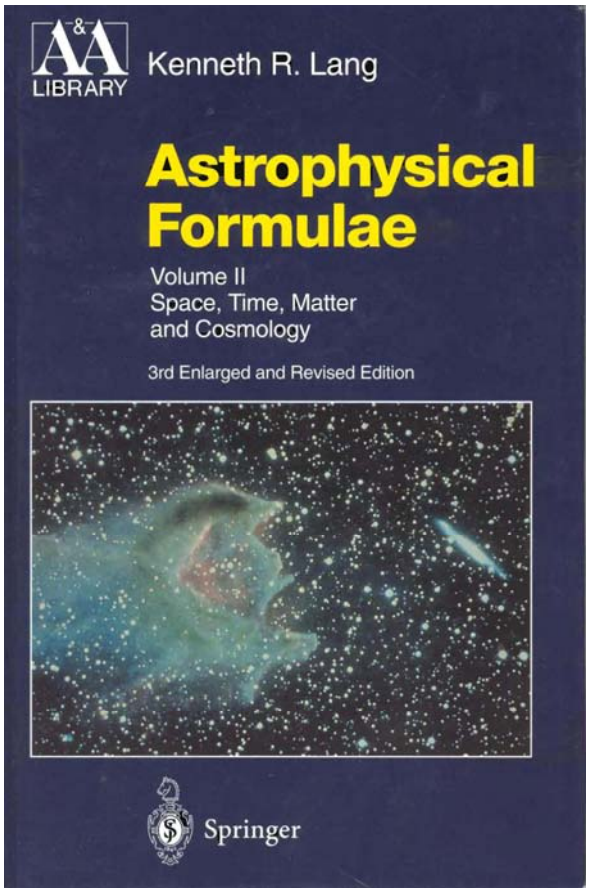
- **Overview:** provides key ideas and fundamental discoveries in a capsule form.
- **Tutorial:** provides text and figures, abridged from the author's lengthier books.
- **Images:** provides more than 400 close-up, high-resolution images from spacecraft and more than 100 line drawings.
- **Print:** provides a printable version of the current content area.

The home pages of the relevant space missions and other related sites are located by clicking on **Resources** at the top of any page.

- The overviews, tutorials, images and resources will be updated to include a decade of NASA planetary and solar missions.

C. ASTROPHYSICAL FORMULAE





- Last published in third edition in 1999.

- A new book Essential Astrophysics will update Astrophysical Formulae, including its most fundamental concepts, discoveries and references.

- Essential Astrophysics will include all of NASA Space Science missions, such as *COBE*, *Hubble*, *Planck*, *Spitzer*, and *WMAP*.