

## DANIEL N. BAKER

Professor of Astrophysical and Planetary Sciences  
Director, Laboratory for Atmospheric and Space Physics,  
University of Colorado, Boulder

### a. Professional Preparation

University of Iowa, Physics/Math, B.A. 1969  
University of Iowa, Space Physics, M.S. 1973  
University of Iowa, Space Physics, Ph.D. 1974  
California Institute of Technology, Research Fellow in Space Physics, 1975-1977

### b. Appointments

1994-present: Director, Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder; 1987-1994: Laboratory Chief, Laboratory for Extraterrestrial Physics, Space Sciences Directorate, NASA/Goddard Space Flight Center; 1981-1987: Group Leader, Space Plasma Physics, Earth and Space Science Division, Los Alamos National Laboratory; 1977-1981: Staff Member, Los Alamos Scientific Laboratory; 1975-1977: Research Fellow, Div. of Physics, Mathematics, and Astronomy (California Institute of Technology); 1974-1975: Research Associate, Dept. of Physics and Astronomy (U. of Iowa); 1970-1974: Graduate Research Assistant, Dept. of Physics and Astronomy (U. of Iowa); 1967-1969: Research Aide, Dept. of Physics and Astronomy (U. of Iowa);

### c. Publications

#### 5 Most Relevant Publications (of >500)

Baker, D.N., Solar wind-magnetosphere drivers of space weather, *J. Atmos. Terr. Phys.*, **58**, No. 14, 1509-1526, 1996.  
Baker, D.N., What is space weather, *Adv. Space Res.*, **22**, 7-16, 1998.  
Baker, D.N., The occurrence of operational anomalies in spacecraft and their relationship to space weather, *IEEE Transactions on Plasma Science*, **28**, 2007-2016, 2000.  
Baker, D.N., How to cope with space weather, *Science*, **297**, 30 Aug 2002.  
Baker, D.N., S.G. Kanekal, and J.B. Blake, Characterizing the Earth's Outer Van Allen zone using the Radiation Belt Content (RBC) Index, *Space Weather*, **2**, S02003, doi:10.1029/2003SW000026, 2004.

#### 5 Other Significant Publications

Baker, D.N., T.I. Pulkkinen, X. Li, S.G. Kanekal, J.B. Blake, R.S. Selesnick, M.G. Henderson, G.D. Reeves, H.E. Spence, and G. Rostoker, Coronal mass ejections, magnetic clouds, and relativistic magnetospheric electron events: ISTP, *J. Geophys. Res.*, **103**, A8, 17,279-17,291, 1998.  
Baker, D.N., D. Vassiliadis, A.J. Klimas, and J.A. Valdivia, The nonlinear dynamics of space weather, *Adv. Space Res.*, **26**, 197-207, 2000.  
Baker, D.N., Coupling between the solar wind, magnetosphere, ionosphere, and neutral atmosphere, *Encyclopedia of Astronomy and Astrophysics*, Edited by P. Murdin, Institute of Physics Publishing, Bristol, UK, pp. 2911-2914, 2001.  
Baker, D.N., S.G. Kanekal, J.B. Blake, and T.I. Pulkkinen, The global efficiency of relativistic electron production in the Earth's magnetosphere, *J. Geophys. Res.*, **106**, 19169, 2001.  
Baker, D.N., S.G. Kanekal, X. Li, S.P. Monk, J. Goldstein, and J.L. Burch, Extreme Van Allen belt distortion in the 2003 Halloween solar storms, submitted to *Nature*, 2004.

### d. Synergistic Activities

Dr. Baker is engaged in a broad range of service, research and education activities that improve observation and modeling in the space research and space weather arena. These include, among others:

1. Service on numerous NASA and National Research Council committees, including (recently) the Solar and Space Physics Decadal Survey that is planning space research programs for the decade 2003-2013. This will be key to future NASA, NSF, NOAA and DoD space research and space weather opportunities. Dr. Baker is now Chair of the NRC's Committee on Solar and Space Physics.
2. Teaching and lecturing to undergraduate and early-career graduate students about space science and policy at venues such as CU-Boulder and the Center for Integrated Space Weather Modeling (CISM) summer school.
3. Chairing international committees devoted to understanding the connected Sun-Earth system. A notable example is the STEP - Results, Analysis, and Modeling Phase (S-RAMP) program of the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP). Dr. Baker was the Chairman of the 5-year (1998-2003) S-RAMP program.
4. Working extensively with industry and the U.S. Dept. of Defense to transfer knowledge about the space environment and its impact on human technological systems. Dr. Baker chairs an advisory committee for the Air Force Technical Applications Center, consults with Ball Aerospace Corporation, and devotes substantial effort to improving knowledge transfer through the NOAA Space Environment Center.
5. Devoting time to the combined university-space research community. A notable example is the Universities Space Research Association (USRA). This is an 88-university member organization chartered by Congress in 1969. Dr. Baker chaired the strategic planning committee for USRA and serves actively as CU-Boulder representative to the USRA Council of Institutions.

#### e. Collaborators & Other Affiliations

Dr. Baker is active in the space research and space weather communities. As co-investigator, co-author, or co-presenter, he has collaborated with nearly 200 space research professionals since 1999. The following abbreviated list includes those individuals, and their affiliations, most directly involved with Dr. Baker's space weather research:

M.H. Acuña - NASA / GSFC	X. Li - Univ. of Colorado / LASP
J.H. Allen - SCOSTEP	G.M. Mason - University of Maryland
S.M. Bailey - University of Alaska	W.E. McClintock - Univ. of Colorado / LASP
J.B. Blake - Aerospace Corporation	R.L. McPherron - UCLA
J.L. Burch - Southwest Res. Institute	T. Onsager - NOAA / SEC
L.B. Callis - NASA/LARC	T.I. Pulkkinen - Finnish Met. Institute
R.E. Ergun - Univ. of Colorado / LASP	G. Reeves - Los Alamos National Lab
T.A. Fritz - Boston University	H.J. Singer - NOAA / SEC
M. Hesse - NASA / GSFC	N.E. Turner - Florida Inst. Tech.
S.G. Kanekal - Univ. of Colorado / LASP	D. Vassiliadis - NASA /GSFC (USRA)
A.J. Klimas - NASA / GSFC	

The following is a list of Dr. Baker's academic associations:

#### Ph.D. Student / Post Doctorate Advisees

S.R. Elkington - Univ. of Colorado / LASP  
 D.F. Moorer - Ball Aerospace Corp.  
 T.I. Pulkkinen - Finnish Met. Institute  
 N.E. Turner - Florida Inst. Tech.  
 E.J. Rigler - Univ. of Colorado / LASP  
 J.R. Green - Univ. of Colorado / LASP

#### Ph.D. /Post Doctoral Advisors

James Van Allen - University of Iowa  
 Ed Stone - Calif. Inst. of Technology