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OBSERVATIONAL ASSOCIATIONS BETWEEN THE SOLAR CORONA AND SOLAR INTERIOR

Richard Woo¹ (818 354-3945; richard.woo@jpl.nasa.gov)
John W. Armstrong¹ (818 354-3151; john.armstrong@jpl.nasa.gov)
Shadia Rifai Habbal^{2,3} (617 495-7348; shabbal@cfa.harvard.edu)

¹Jet Propulsion Laboratory, 4800 Oak Grove Drive MS 238-725, Pasadena, CA 91109, United States

²Harvard Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, United States

³University of Wales at Aberystwyth, Department of Physics, Aberystwyth SY23 3BZ, United Kingdom

Generated in the solar interior, magnetic fields make their way through the solar atmosphere, shaping solar wind flow and determining solar activity. Although essential for understanding and identifying the physical processes by which this occurs, there has been a lack of observational associations between the corona and interior of the Sun. A direct association was recently demonstrated when the latitudinal profile of the correlation of coronal density separated in latitude by 20 degrees was found to be similar to that of the alternating slow and fast zonal bands observed in the outer part of the solar convection zone (Woo et al., *ApJ*, 538, L171, 2000). The latter are also evident on the surface of the Sun where they are known as torsional oscillations.

In this paper, we summarize further results from investigating and characterizing the morphology of coronal density and its relationship to surface and subsurface solar flow using measurements by the High Altitude Observatory Mauna Loa Mk III K-coronameter.

American Geophysical Union
Abstract Form

Reference # 0000

1. 2001 AGU Fall Meeting
2. AGU-01231953
3. (a) Richard Woo
Jet Propulsion Laboratory, 4800
Oak Grove Drive MS 238-725
Pasadena, CA 91109
United States
(b) 818 354-3945
(c) 818 354-2825
(d) richard.woo@jpl.nasa.gov
4. SH
5. (a)
(b) 2164, 7509, 7522, 7536
(c)
6. N/A
7. 0% published elsewhere
8. \$50
Richard Woo
Visa
XXXX XXXX XXXX 1016
9. C
10. No special instructions
11. Regular author

Date received: September 5, 2001
Date formatted: September 5, 2001
Form version: 1.5

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