LATE-PAPER ABSTRACTS
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(Numerals preceding abstract titles
indicate session and sequence of presentation.)

Session 15

15.1 Two-frequency Imaging of Impulsive Microwave
Flares, T. G. Bastian and G. A. Dulk, U. Colo.

The Very Large Array (VLA) was used on 21 November,
1982, in the C configuration at 4.9 GHz and 14.9 GHz to
detect several impulsive microwave flares. Both left-
hand and right-hand circular polarization was measured.
The results are here displayed, interpreted, and the
various flare events intercompared.

This work was supported by NASA’s Solar Terrestrial
Theory Program under grant NAGW-91, and Solar Heli-
ospheric Physics Program under grant NSG-7287 to the
University of Colorado.

15.2 Simple Models for Magnetic Flux Tubes, G.W.
Simon, AFGL, W.U. Weiss, U.U. Cambridge, A.M. NYC,
Rochester Inst. Tech. - Known potential field solu-
tions are used to model magnetic fields in the solar
atmosphere. We compare monopole, gaussian, step-
function, and Bessel potential models, using both
axisymmetric and two-dimensional solutions. Of these,
the step-function, in which the vertical field compo-
ent is prescribed on a horizontal plane so as to be
constant within a disc of finite radius and zero
outside it, is most satisfactory. The resulting flux
distribution appears to represent well small-scale
intergranular magnetic fields, and also pores, but is
clearly inadequate for sunspots.

15.3 Empirically Derived Solar Wind
Conditions Near the Sun

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Predictive modeling of the interplanetary medium
depends on a knowledge of solar wind conditions near
the sun. Since it is presently impractical to use a dynamic
coronal model to predict these conditions, empirical or
simple modeling tools must be used. It is hypothesized
that, to order one, the solar wind speed can be estimated
from the field strength on the source surface of
potential field models, an idea partially motivated by
the observation that these models often reproduce large-
scale structures in the corona. If the hypothesis is
true, this would give a very convenient method for
estimating boundary conditions, because the models are
computationally simple. We have tested this hypothesis
and found that: (i) There is a poor correlation if all
solar wind data is simply extrapolated back to the sun
and compared with the field strength at the source
surface. (ii) Removing solar activity improves the
correlation, but all activity must be identified - not
merely the largest flares. The extrapolation was done
assuming that that the solar wind at the ISEE 3
spacecraft could be extrapolated back to the vicinity of
the sun using a constant velocity. The positive results
support doing a more precise extrapolation and extended
comparison of empirical predictions with spacecraft data.

We thank the ISEE3 Los Alamos Plasma Team and Jet
Propulsion Laboratory Magnetometer Team for use of the
pool tape data.