

ERRATUM: “EVIDENCE THAT A DEEP MERIDIONAL FLOW SETS THE SUNSPOT CYCLE PERIOD”  
 (APJ, 589, 665 [2003])

DAVID H. HATHAWAY  
 NSSTC/NASA Marshall Space Flight Center; david.h.hathaway@nasa.gov

DIBYENDU NANDY  
 Department of Physics, Montana State University

ROBERT M. WILSON  
 NSSTC/NASA Marshall Space Flight Center

AND

EDWIN J. REICHMANN  
 NSSTC/NASA Marshall Space Flight Center

An error was made in entering the data used in Figure 6. This changes the results concerning the length of the time lag between the variations in the meridional flow speed and those in the cycle amplitude. The final paragraph on page 667 should read:

“Finally, we study the relationship between the drift velocities and the amplitudes of the hemisphere/cycles. In Figure 5 we compare the drift velocity at the maximum of the cycle to the amplitude of that cycle for that hemisphere. There is a positive (0.5) and significant (95%) correlation between the two. However, an even stronger relationship is found between the drift velocity and the amplitude of the  $N + 2$  cycle. The correlation is stronger (0.7) and more significant (99%), as shown in Figure 6. This relationship is suggestive of a “memory” in the solar cycle, again a property of dynamo models that use meridional circulation. Indeed, the two-cycle lag is precisely the relationship found by Charbonneau & Dikpati (ApJ, 543, 1027 [2000]). This behavior is, however, more difficult to interpret, and we elaborate on this in the next section. In either case, these correlations only explain part of the variance in cycle amplitude (25% for the current cycle and 50% for the  $N + 2$  cycle). Obviously, other mechanisms, such as variations in the gradient in the rotation rate, also contribute to the cycle amplitude variations. Our investigation of possible connections between drift rates and the amplitudes of the  $N + 1$  and  $N + 3$  cycles gives no significant correlations at these alternative time lags.”

The revised Figure 6 and its caption are given below.

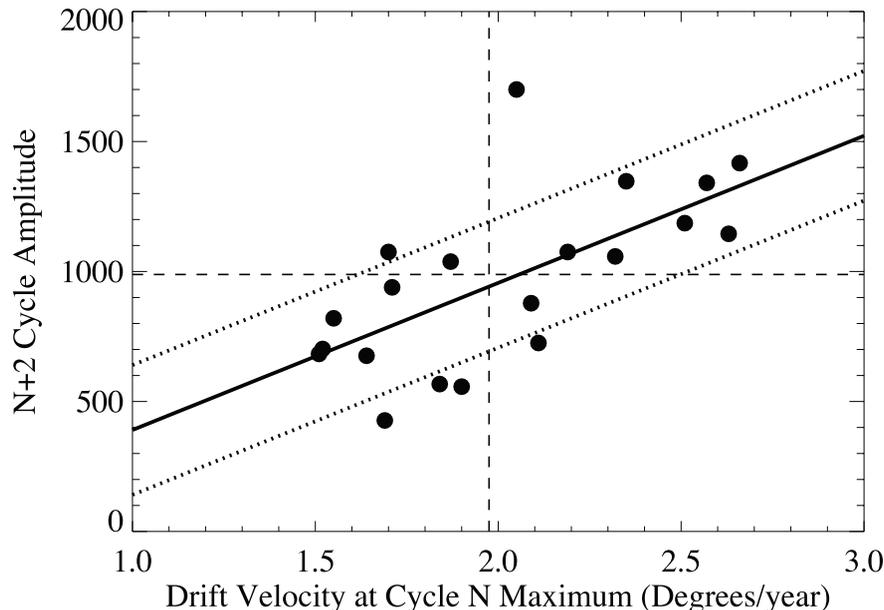


FIG. 6.—Cycle amplitude (sunspot area in millionths of a hemisphere) for the  $N + 2$  cycle vs. equatorward drift velocity at sunspot maximum for each hemisphere/cycle. The  $N + 2$  cycle amplitudes are correlated with the drift velocities at maximum of cycle  $N$ . The solid line shows the best linear fit through the points, while the dotted lines show the  $1 \sigma$  limits. The dashed lines give the median values of the two plotted quantities. The cross-correlation coefficient is 0.7, and the chance of obtaining this distribution from uncorrelated quantities is less than 1%.