Figure 2

## Annular Solar Eclipse of 2013 May 10

$$
\begin{aligned}
& \text { Ecliptic Conjunction }=00: 29: 30.1 \mathrm{TD} \\
& \text { Greatest Eclipse }=00: 26: 19.9 \mathrm{TD} \\
&(=00: 28: 23.1 \text { UT }) \\
&\text { ( } 00: 25: 12.9 \text { UT })
\end{aligned}
$$

Eclipse Magnitude $=0.9544 \quad$ Gamma $=-0.2693$
Saros Series $=138 \quad$ Member $=31$ of 70


External/Internal Contacts of Penumbra
P1 = 21:25:09.7 UT
P2 $=23: 45: 19.4 U T$
P3 = 01:05:14.8 UT
P4 = 03:25:23.0 UT

Constants \& Ephemeris
$\Delta T=67.0 \mathrm{~s}$
$\mathrm{k} 1=0.2724880$
$\mathrm{k} 2=0.2722810$
$\Delta b=0.0^{\prime \prime} \quad \Delta l=0.0^{\prime \prime}$
Eph. = VSOP87/ELP2000-85

External/Internal Contacts of Umbra
$\mathrm{U} 1=22: 30: 33.9 \mathrm{UT}$
$\mathrm{U} 2=22: 34: 46.4 \mathrm{UT}$
U3 = 02:15:42.1 UT
$\mathrm{U} 4=02: 19: 58.3 \mathrm{UT}$

Geocentric Libration (Optical + Physical)

$$
\begin{aligned}
& I=3.05^{\circ} \\
& b=0.36^{\circ} \\
& c=-17.25^{\circ}
\end{aligned}
$$

Brown Lun. No. = 1118

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eclipse.gsfc.nasa.gov/eclipse.html

