

Point Of View

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A Splash Page

Deep Space Climate Observatory



Figure 1 : **DSCOVER** sees $\approx 2.68 : 1$

L_1 : a saddle point location for parking satellites

$$r_{\text{Earth} - L_1} \approx R_{\text{Earth} - \text{Sun}} \sqrt[3]{\frac{M_{\text{Earth}}}{3M_{\text{Sun}}}} \approx (10^{-2}) R_{\text{Earth} - \text{Sun}}$$

$$r_{\text{Earth} - L_1} \approx 1.4811 \times 10^9 \text{meter}$$

$$r_{\text{Earth} - L_1} - r_{\text{Earth} - \text{Moon}} = r_{\text{Moon} - L_1} \approx 1.0967 \times 10^9 \text{meter}$$

$$D_{\text{Moon}} \approx 3.4742 \times 10^6 \text{meter} \implies \theta_{\text{Moon}} = 0.003167867$$

$$D_{\text{Earth}} \approx 1.2742 \times 10^7 \text{meter} \implies \theta_{\text{Earth}} = 0.008603065$$

$$\theta_{\text{Earth}} \approx 2.72 \theta_{\text{Moon}}$$

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Sun - Earth : L_1 point

$$r_{L_1 - \text{Earth}} \approx R_{\text{Earth} - \text{Sun}} \sqrt[3]{\frac{M_{\text{Earth}}}{3M_{\text{Sun}}}}$$

$$1.496 \times 10^{11} \text{ meter}$$
$$333,000$$

$$r_{L_1 - \text{Earth}} \approx (1.0003 \times 10^{-2}) R_{\text{Earth} - \text{Sun}}$$

$$1.496 \times 10^9 \text{ meter}$$

$$r_{\text{Earth} - \text{Sun}} = 1.496 \times 10^{11} \text{meter}$$

$$r_{\text{Moon} - \text{Earth}} = 3.844 \times 10^8 \text{meter}$$

$$r_{\text{L}_1 - \text{Sun}} = 1.4811 \times 10^{11} \text{meter}$$

$$r_{\text{Earth} - \text{L}_1} = 1.4811 \times 10^9 \text{meter}$$

$$r_{\text{Moon} - \text{L}_1} = 1.0967 \times 10^9 \text{meter}$$

$$D_{\text{Moon}} = 3.4742 \times 10^6 \text{meter}$$

$$r_{\text{Moon} - L_1} = 1.0967 \times 10^9 \text{meter}$$

$$\frac{D_{\text{Moon}}}{r_{\text{Moon} - L_1}} \Leftrightarrow \theta_{\text{Moon}} = 0.003167867$$

$$D_{\text{Earth}} = 1.2742 \times 10^7 \text{meter}$$

$$r_{\text{Earth} - L_1} = 1.4811 \times 10^9 \text{meter}$$

$$\frac{D_{\text{Earth}}}{r_{\text{Earth} - L_1}} \Leftrightarrow \theta_{\text{Earth}} = 0.008603065 \approx 2.72 \theta_{\text{Moon}}$$