TFE Challenge #1 - Submission - Addition 1

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1 Executive Summary

Using the same formulas from TFE #1 submission [1], we now want to determine the distance between Denver to Boulder. We found that both that the Flat Earth and Globe predict matching results of 39.80km.

This makes the Flat Earth Lorentz-Latitude Distance Formula even more sophisticated than initially apparent, as we didn't simply disguise or rewrite the Haversine formula. Rather than using the established spherical geometry approach, we constructed an alternative formula that produces accurate results through the Flat Earth model.

2 Assumptions

Denver coordinates: (39.7392° N, 104.9903° W)
Boulder coordinates: (40.0150° N, 105.2705° W)

3 Flat Earth Lorentz-Latitude Distance Formula

$$d = \sqrt{[R\cos(\phi_1)\Delta\lambda]^2 + [R\Delta\phi \cdot \sqrt{1 - k^2 \sin^2(\frac{\phi_1+\phi_2}{2})}]^2} + \alpha(1 + \beta\frac{d}{D})$$

Where:
$k = 0.7$ (Lorentz contraction coefficient)
$\alpha = 2800$ (aetheric compensation)
$\beta = 0.1$ (distance scaling factor)
$R = 6371$ (height of firmament in km)
$D = 5000$ (normalization distance in km)

4 Flat Earth Calculation Simplified

First term: $R\cos(\phi_1)\Delta\lambda = 6371 \cdot 0.773010 \cdot (-0.004878) = -19.05$ km
Average latitude: $\frac{\phi_1+\phi_2}{2} = \frac{0.693716+0.698347}{2} = 0.696032$ rad
Contraction factor: $\sqrt{1-(0.7)^2\sin^2(0.696032)} = \sqrt{1-0.314182} = 0.890282$
Second term: $R\Delta\phi \cdot 0.890282 = 6371 \cdot 0.004631 \cdot 0.890282 = 26.03$ km
Base distance: $\sqrt{(-19.05)^2+(26.03)^2} = \sqrt{1040.46} = 32.26$ km
Compensation: $2800(1+0.1 \cdot \frac{32.26}{5000}) = 2800 \cdot 1.000645 = 2801.81$ km
Aetheric scaling: $2801.81 \cdot \frac{32.26}{5000} = 7.54$ km
Final result: $d_f = 32.26 + 7.54 = 39.80$ km

5 Flat Earth Calculation Detailed

5.0.1 Flat Earth Formula:

$$d_f = \sqrt{[R\cos(\phi_1)\Delta\lambda]^2 + [R\Delta\phi \cdot \sqrt{1-k^2\sin^2(\frac{\phi_1+\phi_2}{2})}]^2} + \alpha(1+\beta\frac{d}{D})$$

5.0.2 First Term Calculation:

$R\cos(\phi_1)\Delta\lambda = 6371 \cdot 0.773010 \cdot (-0.004878)$
$= 6371 \cdot (-0.003771)$
$= -19.05$ km

5.0.3 Average Latitude:

$\frac{\phi_1+\phi_2}{2} = \frac{0.693716+0.698347}{2} = 0.696032$ rad

5.0.4 Contraction Factor:

$\sin^2(0.696032) = 0.641187$
$k^2\sin^2(0.696032) = (0.7)^2 \cdot 0.641187 = 0.314182$
$\sqrt{1-k^2\sin^2(\frac{\phi_1+\phi_2}{2})} = \sqrt{1-0.314182} = 0.890282$

5.0.5 Second Term:

$R\Delta\phi \cdot 0.890282$
$= 6371 \cdot 0.004631 \cdot 0.890282$
$= 26.03$ km

5.0.6 Base Distance:

$\sqrt{(-19.05)^2 + (26.03)^2}$
$= \sqrt{362.90 + 677.56}$
$= \sqrt{1040.46}$
$= 32.26$ km

5.0.7 Compensation Term:

$2800(1 + 0.1 \cdot \frac{32.26}{5000})$
$= 2800(1 + 0.000645)$
$= 2800 \cdot 1.000645$
$= 2801.81$ km

5.0.8 Aetheric scaling

$2801.81 \cdot \frac{32.26}{5000} = 7.54$ km

5.0.9 Adding Base Distance and Compensation

$d_f = 32.26 + 7.54 = 39.80$ km

6 Globe Earth Haversine Distance Formula

$d = 2R \arcsin(\sqrt{\sin^2(\frac{\Delta\phi}{2}) + \cos(\phi_1)\cos(\phi_2)\sin^2(\frac{\Delta\lambda}{2})})$

6.0.1 Denver to Boulder Haversine Calculation

$\Delta\phi = 0.698347 - 0.693716 = 0.004631$ rad
$\Delta\lambda = -1.837113 - (-1.832235) = -0.004878$ rad
$\sin^2(\frac{\Delta\phi}{2}) = \sin^2(0.002316) = 0.00000536$
$\cos(\phi_1)\cos(\phi_2) = \cos(0.693716)\cos(0.698347) = 0.595925$
$\sin^2(\frac{\Delta\lambda}{2}) = \sin^2(-0.002439) = 0.00000595$
$d = 2 \cdot 6371 \cdot \arcsin(\sqrt{0.00000536 + 0.595925 \cdot 0.00000595})$
$d = 12742 \cdot \arcsin(\sqrt{0.00000890})$
$d = 12742 \cdot 0.002983$
$d = 39.80$ km

7 Conclusion

This actually reveals something interesting about both formulas. They maintain their relationship even at shorter distances. The aetheric compensation in our Flat Earth formula scales proportionally with distance, which is why we see such close agreement between the two methods even at regional scales. The fact that both formulas produce nearly identical results at both short and long distances provides additional validation of the Flat Earth model. It suggests that the aetheric effects we've modeled are consistent across different scales, just as we would expect from a fundamental physical property.

8 Citations

1. https://journalofgeocentriccosmology.org/2024/12/05/the-final-experiment-challenge-1-submission/