Celestial Theodolite

how to know the true elevation angle

Dr Michael Heffron developed these slides for discussion/presentation during an Aether Cosmology community stream Q&A session (available on the Space Audits channel of YouTube, https://www.youtube.com/live/eFm0lVt-zag?si=I2M0bfrWjUoFN-Ob), and hereby gives permission to freely distribute these presentation slides.

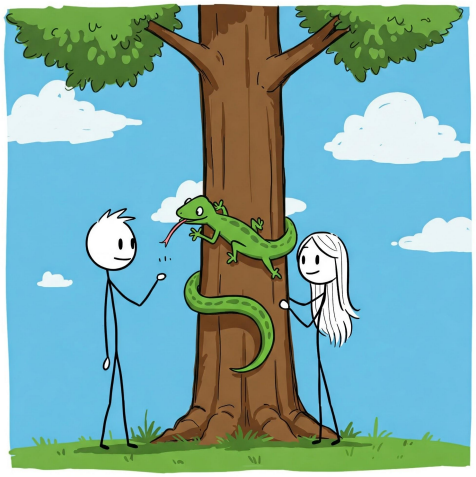
Some people seem to misunderstand my celestial theodolite concept, especially the antagonists you lads & ladettes so often debate.

For that reason, this presentation will give you much more information for your debates with those who desperately want to avoid exposure to the truth.

At any time during this presentation, please ask me to go back or clarify anything that seems unclear or confusing.

Also feel free to interrupt at any time with questions or to challenge my facts.

Garden of Eden (drawing by Gemini AI)



There's a very old story about the first man and woman in a garden East of Eden.

The lesson of that story is the same regardless of whether it is literally true or just a parable…

That lesson is: **The deceiving serpents of this world will try to discover what you don't know and exploit your lack of knowledge.**

Don't let them do that.

How were we ever deceived by the forked-tongues of those cute little lizard-brains?

There is much we can know, despite what we don't know.

Refer back to Aether Round Table #63 (https://www.youtube.com/live/ryOfulIDPZ0?si=UFtT-SLzVEQOa3WZ) if you don't yet understand what we can know despite what we don't.

For those who may want to know, my request to Gemini was "Create a stick figure drawing of two people next to a tree that has a lizard wrapped around it with its forked tongue sticking out. One person should have short hair, and the other should have long hair draped over its shoulders and covering its chest."

We want to test a simple hypothesis

H_1: Earth is a globe

H_0: Earth is not a globe

Imagine that for some reason we strongly believe that Earth is a globe, but we are hypothesis-savvy so we know we can't prove that.

Instead, we want to refute the mutually exclusive opposite null hypothesis that Earth is not a globe.

That should be a simple task of measuring a mountain tall enough to see and far enough away to be impacted by the curvature of the Earth.

Pikes Peak

https://www.movable-type.co.uk/scripts/latlong.html

Latitude: 38°50’25” N

Longitude: -105°02’40” W

Distance from my house: 50.7 km

Initial bearing: 249°48’58”

Final bearing: 249°28’15”

Pikes Peak is conveniently near me and easy to measure.

From its latitude & longitude, this website calculated the distance between me and Pikes Peak.

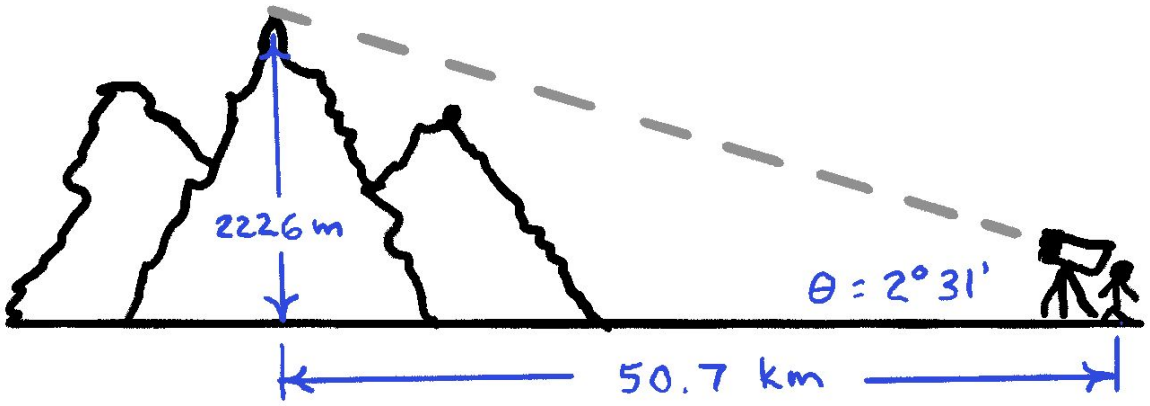
It also calculated the initial bearing from my location and the final bearing from the peak.

The distance is useful for predicting the expected elevation of the peak, as done on the next slide.

The final bearing will become useful for a later step.

The website also gives a very detailed explanation of the math involved.

Plane trigonometry



This is my original drawing to illustrate how I calculated that Pikes Peak should be at an elevation of 2°31' from my house on a flat Earth.

Now refuting H_0 that "Earth is not a globe" should be a simple matter of demonstrating that $\theta \neq 2°31'$ and we're done!

Apparently many reptiles find aspects of this drawing too complex to understand.

Personally, I prefer to take the advice often attributed to Mark Twain – "Never argue with an idiot. They will drag you down to their level and beat you with experience."

(Pause briefly in case of laughter.)

Hopefully you lads & ladettes who do like to argue with idiots can explain to them in simpler terms what this all means.

Logical leap

Exceptional leveling

Eyepiece focuses crosshairs

Separate lens focus for distance

Fine adjustment for elevation

https://www.youtube.com/live/XeaucxLNZY0?si=rsh4iuCtexM0eeDK

As I warned you all during Aether Round Table #56 (https://www.youtube.com/live/KQsyEUXG3xQ?si=Wh74-NFsJDaTHyCY),

my professors often complained about my logical leaps over things that seemed so obvious to me that I didn't thoroughly explain my thought process.

The purpose for this Q&A session is my concern that I may have failed to properly lay the foundation for some of my logical leaps

during my presentation for Globebusters episode 13.6 (https://www.youtube.com/live/XeaucxLNZY0?si=rsh4iuCtexM0eeDK).

Many people correctly observed that my well-used antique David White 8300 is a "level-transit" rather than a theodolite.

Why then would so many knowledgeable people call that "level-transit" the best theodolite ever made?

Critics correctly say it is only accurate to the nearest 5 minutes of arc.

Those critics failed to recognize that 5' is adequate to distinguish between the globe Earth prediction of 2°04' and the flat Earth prediction of 2°31'

for the "uncorrected" angle of elevation from my house to Pikes Peak.

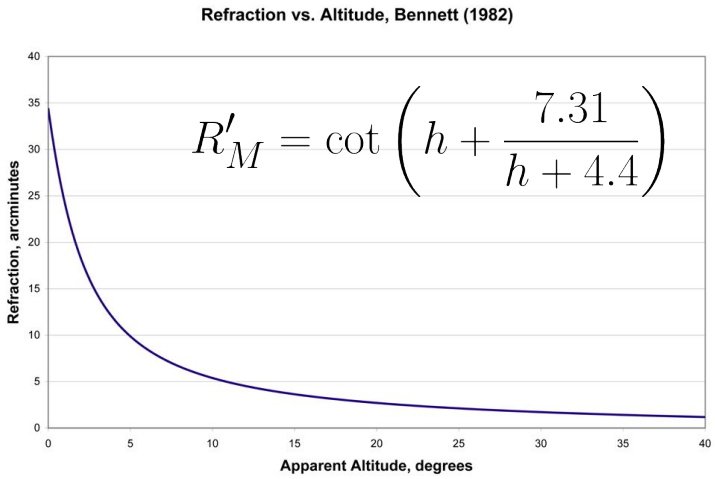
Note that the “uncorrected” globe Earth elevation of 2°04’ is often corrected to 2°19’ to account for “atmospheric refraction.”

Critics also failed to realize that this antique device was specifically designed to precisely measure deviations of azimuth and elevation to its 5’ level of accuracy.

That corresponds to a deviation of less than 73 meters at 50 km, with absolutely no optical correction for the alleged curvature of the Earth.

Was my measurement accurate? My next logical leap was that it doesn’t matter whether or not my measurement was accurate, and here’s why…

Refraction is the problem!



Atmospheric refraction is the big problem!

The reptiles of this world have been playing a shell game of epic proportions.

Extremely venomous Australian reptiles want you to believe unidentified professional surveyors measure an “uncorrected” elevation of 2°04’ for Pikes Peak from my house.

The reptiles don’t want you to ask intelligent questions, especially not

Why do professional surveyors need to reference a marker on a neighbor’s property to make a simple “uncorrected” elevation measurement?

Put more simply, why can’t they just level their instrument and report what it measured like I did?

All of their nonsense is obfuscation!

The astute among you either already know or will realize before the end of this presentation there are major problems with their “uncorrected” elevation.

The most expensive theodolite ever made is only accurate over a range of a few hundred meters before it needs “correction.”

Why does it need correction?

Because it begins to deviate from the curvature of a globe Earth,

and all of the **“intelligent”** people in the world **“know”** that the Earth is a globe.

The main point of G.G. Bennett’s 1982 paper “The Calculation of Astronomical Refraction in Marine Navigation”

was that he wanted to reduce the sheer volume of inconsistent atmospheric refraction corrections.

On top of that, there are additional corrections for temperature and pressure.

I’m going to ask a rhetorical question,

Why was I so focused on “celestial” atmospheric refraction and why is it different from terrestrial atmospheric refraction, or is it?

Correction for refraction is the reptiles’ biggest problem, so let’s eliminate it for them!

We will now begin a thorough discussion of how the celestial theodolite concept bypasses the need for any corrections and yet accurately measures terrestrial angles.

Components of a theodolite

Telescope for sighting

Horizontal and vertical circles to measure angles

Leveling screws for adjusting the instrument

A compass for orientation

A tripod for stability, a vertical axis, an upper plate, a lower plate, and an optical plummet to center the instrument over a point

First, let's examine the components of a typical terrestrial theodolite.

According to Gemini AI, "A theodolite typically consists of a telescope for sighting, horizontal and vertical circles to measure angles, leveling screws for adjusting the instrument, a compass for orientation, a tripod for stability, a vertical axis, an upper plate, a lower plate, and an optical plummet to center the instrument over a point."

AI is indeed artificial, but far from intelligence.

Please don't use Automated Indoctrination for anything other than finding out what a majority of people believe, or maybe what Big Brother wants you to believe.

(That's not funny, but pause in case some people think it is. That's not a put-down, but, rather, an observation about how some people cope with adversity.)

I will now explain how we can eliminate the red components and improve the green components of a theodolite.

Telescope for sighting

Eyes

Binoculars

Telescope

Level-transit or theodolite

You can just use your eyes, but it would probably be better to use binoculars or a telescope.

If you want to mess with the reptiles, you can use a level-transit or a theodolite to help confirm their confirmation bias that those are necessary.

I like to use time-lapse video from a “toy” telescope that I can setup to observe stars for me and then ignore while I go do other things.

Orion nebula (M42)

As an aside, this is my first ever astronomical photo from that “toy” telescope.

I apologize for it being slightly off-center, but it didn’t seem too bad for my first attempt.

In case anyone asks…

This was a one-minute exposure that may or may not have used the Seestar S50 built-in “dual-band anti-light pollution filter” to photograph M42.

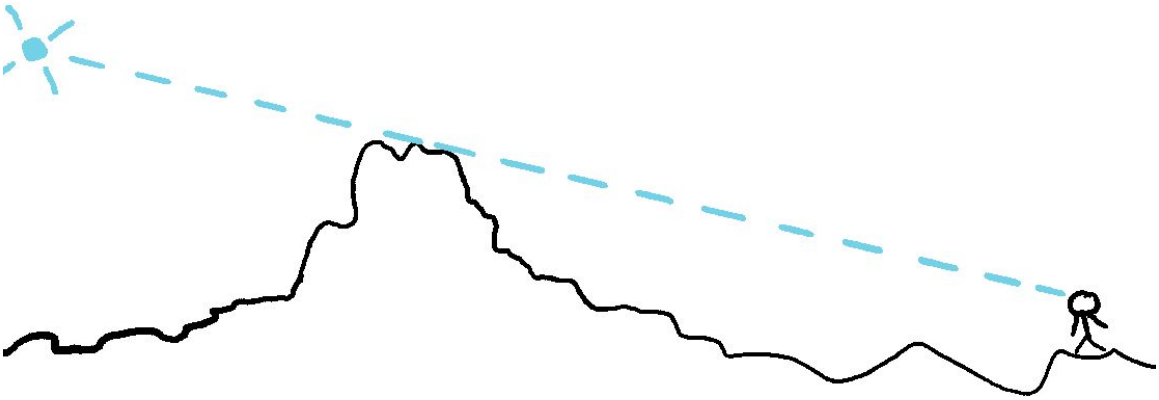
That filter automatically activates when needed, depending on the conditions.

It specifically targets the OIII (30nm) and Hα (20nm) wavelengths to reduce light pollution while capturing details in the nebula.

Horizontal crosshair

Mountain peak

Time when the peak occludes a star



Rather than horizontal and vertical circles to measure angles, let's just use old-fashioned crosshairs.

Whatever mountain peak we use ***is*** the horizontal cross hair.

Consistent with my meager artistic abilities, this drawing depicts someone on an ambiguous surface looking at star above a mountain peak.

At this point, we haven't yet taken the steps necessary to determine whether the Earth is flat or a globe,

but, since there is only an imperceptible fraction of a degree difference between flat and globe, the diagram looks the same either way.

We are simply going to time the exact moment a star is no longer visible behind the peak.

You can be standing on your head, laying on the ground, whatever.

In other words, you don't need leveling screws, a tripod for stability, a vertical axis, an upper plate, a lower plate, nor an optical plummet to center the instrument over a point.

We have just eliminated numerous possible points of error.

The only things you care about is what time the star disappeared, the altitude-above-sea-level of your eye or telescope lens, plus your latitude and longitude.

The instant the star disappears,

you have effectively just teleported yourself to the mountain peak,

and in doing so you have completely bypassed any need for atmospheric refraction correction between you and the peak.

The reptiles are going to argue that you can't do that, because they can only view things through their globular lizard eyes.

(Pause briefly in case anyone laughs at that.)

It doesn't matter how far away you are from the mountain nor what direction you are looking.

Whatever the "uncorrected" elevation of the star was at that instant on the mountain peak is the true angle of the starlight when you saw it vanish.

You literally couldn't care less where the star appears to be,

the only thing that matters is that the star no longer appears to be anywhere & you know what time that occured.

Are there any questions or concerns about that before we move on?

For anyone still concerned about refraction, point out that even the "major" 27' deviation alleged by reptiles is irrelevant when a mountain peak blocks the starlight.

When the peak blocks the starlight, whatever was the "uncorrected" elevation of the star at the moment was the true line-of-sight.

Vertical crosshair = astronomy tool

Turn off atmospheric correction

Set location to mountain peak

Turn on bullseye

Center it on flat Earth elevation at final bearing

Your tool will now identify every star the peak occludes

Those stars will be in the bullseye at the flat Earth elevation

The vertical crosshair of your celestial theodolite is Stellarium,

or your favorite astronomy software that allows you to turn off atmospheric correction.

Turning off the atmospheric correction is the first thing you should do!

Ironically, turning off atmospheric correction is the key to accurate measurement.

I'll explain that better soon!

Next, set the viewing location to the latitude and longitude of the mountain peak you are observing.

Then, turn on the bullseye and center it on the final bearing at the expected flat Earth elevation.

I like Stellarium's "Telrad" bullseye, but Stellarium has many other good reticles/graticules, including custom.

Stellarium is now properly configured to identify every star the peak occludes.

You can either do this in real-time, or just set Stellarium after-the-fact to the exact date and time you saw each star vanish.

My first major success was Pikes Peak occluding 39 Aquarii on Janurary 31, 2025 at 25 seconds after 6:27 PM (MST), as reported on Globebusters episode 13.6.

For my viewing environment, I also found it convenient to limit magnitude to 7.6 or lower,

so Stellarium won't identify stars too faint for me to easily see with short exposures on my "toy" telescope.

Short exposures are the key to improving accuracy.

Despite what globers claim are Stellarium's gross inadequacies,

as long as their bogus atmospheric corrections are turned off,

it somehow manages every time to show stars at the expected flat Earth elevation at the moment the peak occludes those stars.

Keep in mind, Stellarium doesn't know where you are viewing from.

It only knows where the star actually was at that moment in time!

You literally don't care where the star appears to be, only where the star map says it actually was when the peak occluded it.

I hope you can see what a dilemma this is for the reptiles!

(Pause, just in case!)

They can't baffle you with atmospheric refraction that somehow always predicts a globe Earth.

They are also put into a position of having to claim the peak occluded the star from an elevation below what you can see while the mountain is slanted away from you.

Some even argue that atmospheric refraction elevated the star by the exact curvature of a globe Earth just before the peak occluded it.

It should be obvious that the reptiles need numerous "corrections" to make their claims work, whereas you are just using the uncorrected location of where the star you saw vanish actually was.

Thousands of observatories all over the world typically contribute to knowing precisely where stars actually are.

In any case, you can witness so many stars in one night that you have an adequate number to confirm the accuracy of your measurements.

Are there any questions about any of this before we move on?

There's just one thing I don't understand…

Why is it that no matter how far away I am and which direction I look, the uncorrected elevation at the peak when it occludes the star always matches the elevation predicted for a flat Earth, when it doesn't know where I am?

This is puzzling to some people…

Why is it that no matter how far away you are, and no matter which direction you look,

the uncorrected elevation at the peak when it occludes the star always matches the elevation predicted for a flat Earth, when it doesn't know where you are?

By what miracle is that possible?!?

Meanwhile, the reptiles need to "correct" terrestrial theodolite measurements for "refraction" that is based on what angle you are viewing,

and only then can they calculate a "correction" to figure out an elevation that conforms to what they "know" is the right answer.

Think about what that means!

Stellarium doesn't need to know what angle you are viewing from,

whereas the reptiles ***must*** know in order to apply the proper "correction" factor.

To restate that for those who still don't understand, Stellarium doesn't need to know where you are to give you the correct elevation at which you saw the star vanish!

It only needs to know which peak you are observing, and what time that peak occluded the star.

What just happened?

You don’t need a calibrated theodolite & “corrections”

Stellarium gave you the precise (uncorrected) elevation

You don’t need an expensive calibrated theodolite and “corrections” for atmospheric refraction.

You just used your eyes or a cheap telescope to spot when a star disappeared,

and then Stellarium told you the real elevation of that star at the time it disappeared.

The accuracy of that celestial theodolite is incredible,

because you don’t need to account for whatever twists and turns the reptiles want you to believe the light took as it slithered its way to you!

Do you want better accuracy?

Use a better camera for faster time-lapse or real-time

Use an accurate timestamp on your video

If you want even greater accuracy,

your accuracy is limited only by the speed of your camera and the accuracy of your timing.

Since stars travel at a stable rate, you can also interpolate between elevations at adjacent times in your tool if you want to more precisely determine the elevation.

What you needed to know to find the elevation

What peak were you watching

What time did the star vanish

So far, all you needed to know to find the correct elevation is what peak you were watching and what time the star vanished.

Everything else was merely a convenience to quickly identify that star in your astronomy tool,

and to easy predict what angle that should be on a flat Earth.

For Pikes Peak…

The altitude of the peak is 4300 m

The altitude of my telescope lens is 2074 m

The horizontal distance between them is 50.7 km

Flat Earth elevation angle = atan(Δaltitude / distance) = 2°31’

Only now do we need to know where we were when we saw the star vanish,

and we need to know that solely to determine whether the elevation angle matches the flat Earth prediction or the globe Earth prediction.

For Pikes Peak,

the predicted flat Earth elevation angle is atan(Δaltitude / distance), which corresponds to 2°31’.

To within ±2’ that was the uncorrected Stellarium elevation I measured for every occluded star.

Why are critics so insistent that angle needs to be measured from the location where my telescope sat on its tripod rather than from the peak?

That is because they want to force the need for theodolite measurements they can subsequently “correct” for the curvature of the Earth.

Let me show you some things now…

For a globe Earth…

The slant of the Earth = asin(distance / radius of Earth)

For my location,

globe slant = asin(50.7 km / 6370 km) = 27’

“uncorrected” elevation = 2°31’ - 27’ = 2°04’

“corrected” elevation = 2°04’ + 15’ = 2°19’

On peak, 2°31’ + 15’ = 2°46’ and 2°46’ - 2°19’ = 27’

Conveniently, a generous donor confirmed that 2°04’ is an accurate “uncorrected” elevation from my viewing location on a globe Earth.

In other words, professional surveyors found that the 2°31’ “uncorrected” angle of the starlight occluded by the peak somehow bent down to 2°04’ by the time it reached my telescope.

But wait, I didn’t measure the angle at my telescope!

I bypassed all of the alleged bendy light and measured the angle directly at the peak.

Critics claim light is even more bendy on the peak, so I bypassed that too and found the actual “uncorrected” star elevation was 2°31’.

I then compared that to the 2°31’ elevation angle flat Earth predicts for a straight line-of-sight,

and what do you know, they are the same elevation angle!

What are the odds those two angles would be the same, and why do they both deviate from what the reptiles predict for a globe Earth?

No problem, the reptiles merely subtract their imagined curvature of the Earth from the real star location to determine the “uncorrected” elevation from which I was

viewing the star.

The reptiles then add about 15’ to “correct” the elevation angle from my location to 2° 19’,

and they add about 15’ to “correct” the elevation angle on the peak to 2°46’.

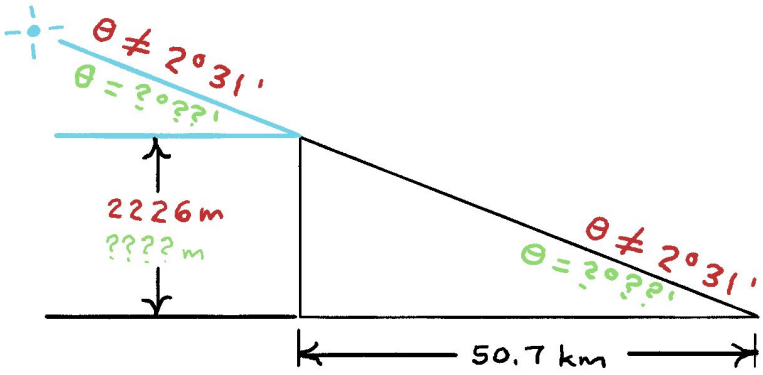
Now the difference between their two “corrected” elevations is magically the slant due to the curvature of the Earth.

Wait, I thought they told us that curvature of the Earth wasn’t built into their “corrections” (that was very sly of them, wasn’t it?)!

Interestingly, those sly corrections are very consistent with G.G. Bennett’s astronomical corrections, which allegedly don’t have the curvature of the Earth built into them.

Are there any questions about this before we move on?

Let's be real



You don't need better accuracy!

My advice is to let the reptiles tell you whatever mystery numbers they are using for the day and time of the comparison.

(Pause, just in case!)

For Pikes Peak from my sunroom,

it is relatively easy to use Stellarium to determine we are measuring a flat Earth elevation of 2°31' rather than a globe Earth elevation of whatever they claim for today.

Most importantly, the reptiles must argue that their globe Earth prediction does not match the flat Earth prediction.

They don't seem to understand that's the point.

You can see their dilemma, to falsify their H_0 they need to measure a "corrected" angle of whatever it is today.

If they "correct" their angle too close to the flat Earth prediction they are validating their null hypothesis that "Earth is not a globe." **What a pickle!**

Alternatively, the reptiles may argue you are using an "uncorrected" angle, so they are

entitled to do that too!

Oops… they have already admitted the only way they can determine their "uncorrected" angle is to subtract the atmospheric refraction.

(Their "Throne of Lies" appears to rely on very carefully selected weasel words and refraction corrections at both ends to hide that it is really the alleged curvature of the Earth!)

All the celestial theodolite concept does is to give you a stable and very precise elevation for the star from your location.

The celestial theodolite concept eliminates globe Earth manipulation and the need to "correct" for atmospheric refraction.

No matter what peak you observe from what location,

the celestial theodolite indicates a flat Earth angle rather than a "corrected" globe Earth angle.

It’s so simple a child could do it!

This technique is truly so simple a child could do it, even without the knowledge helmet Dr McCoy needed to restore Spock’s brain.

Are there any questions?

Q & A

Are there any questions?