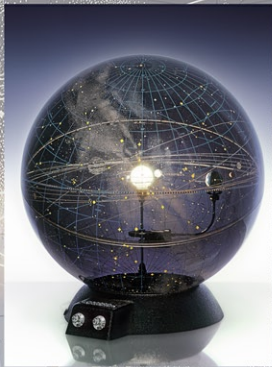


OBSERVATIONS AND DEMONSTRATIONS WITH A BAADER PLANETARIUM



PRIMARY SCHOOLS:

- Earth's revolution around the Sun (annual movement)
- Direction of Earth's axis towards the Celestial Pole (seasons)
- Earth's rotation around its axis (day and night, world time)
- Changing length of day and night (summer day, winter day, polar day, equatorial day)
- Moon's orbit around the Earth (full Moon, new Moon, phases of the Moon, lunar Eclipse, solar Eclipse)
- Polar orbit of a space ship
- The changing of the seasonal night skies (resulting from Earth's annual revolution)
- The hourly movement of the night skies as result of Earth's rotation

SECONDARY SCHOOLS:

- The Earth indeed "hangs in space" and rotates around its axis (observation of the astronauts)
- The derivation of the apparent movements of Sun, Moon, Planets and Fixed Stars from Earth's real motion, visible in the Planetarium
- The changing of the lunar nodes
- The horizon, depending on our position on Earth
- Celestial Equator and Ecliptic
- The Celestial Globe as spherical star map, magnitudes of Stars and the Constellations
- Synchronization of Earth and Star Globe to demonstrate the actual night sky

HIGH SCHOOLS AND UNIVERSITIES:

- Precession, different Calendars (lunar year – solar year)
- Solar time and Sidereal time, Solar day and Sidereal day directly visible
- Positional astronomy and astronomical determination of longitude and latitude deduced from heliocentric observations
- The different Coordinate Systems
- Changing of reference plane (by referring all observations onto a horizontal ecliptic or onto a horizontal celestial equator)
- Parallaxes in nature, parallaxes in the Planetarium
- Horizon, Star tracks, Sun's track
- Projection with the Planetarium, adjustment of the Star Globe matching the actual night Sky for every position on Earth and any date in the year, as basics for Celestial navigation





50 YEARS OF BAADER PLANETARIUM

proved our concept of **including the heliocentric as well as the geocentric way of viewing** in one planetarium to be a very successful basis for introducing students into space science and astronomy. There is **no other instrument** available, which uses Earth's **real motion** (that is the earths diurnal rotation and its annual revolution) to explain the apparent diurnal and annual movements of Sun, Planets and Fixed Stars.

As a result of such demonstrations with a BAADER PLANETARIUM, we reformulated the crucial knowledge of ARISTARCHUS OF SAMOS and NICOLAUS COPERNICUS in regard to the distances between Earth, Sun and Fixed Stars, to say: **"The distance between Earth and Sun (150 million km) is a nearly zero, compared to the distance between Earth and Fixed Stars."**

In using the BAADER PLANETARIUM, the model Solar-System (orrery) is to be understood as a **point in the center of the celestial globe**. In this way we explain the minute parallax of the Fixed Stars in contrast to the seasonal height of the Sun ("Sun's annual parallax"). Moreover, the retrograde motions of the Planets are verified as a question of distance under which they are being observed.

Given such preconditions a BAADER PLANETARIUM is able to provide an ideal introduction into **positional astronomy** as well as into the basics of **astronomical determination for longitude and latitude**. Solar time and Sidereal time as well as Solar day and Sidereal day are made understandable. Moreover, Precession movement can be demonstrated with a BAADER PLANETARIUM as the changing direction of the Earth axis. In this way, the night sky for the **time at the birth of Christ** can be shown - or we can **verify HOMER** when he writes in the "ODYSSY" that "the Bear, named by others as the Wain" was a circumpolar Constellation 3000 years ago for mediteranean latitudes.

For astronomers as well as for teachers, a BAADER PLANETARIUM seen that way is everything else but a toy. Having in mind the capability to project the sky and the possibility of using our projection cupolas of 2,5 or 3,5 meters in diameter together with a BAADER PLANETARIUM, our instrument is the cheapest projecting Planetarium in the world

Claus Baader



BAADER PLANETARIUM ^{GMBH}

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