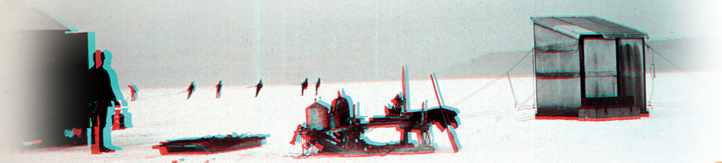
UNESCO
United Nations Educational, Scientific and Cultural Organization

100th anniversary of Roland Eötvös (1848-1919), physicist, geophysicist, and innovator of higher education
Commemorated in association with UNESCO

1EOTVOS

www.eotvos100.hu



Tents for personnel and instrument, on Lake Balaton, in 1905.
In the background: fishermen, the so-called "fishing bush" members, pull the net.

Eötvös Torsion Balance: the Large Double Version

In the tent: the earth-inductor.
The galvanometer in front of the tent, is just wrapped here.

SCIENTIFIC CONCEPTS & TERMS NAMED AFTER ROLAND EÖTVÖS

CAPILLARITY
SURFACE TENSION OF LIQUIDS

EÖTVÖS RULE (Eötvös law of capillarity) The Eötvös rule enables the prediction of the surface tension of an arbitrary liquid pure substance at all temperatures.

EÖTVÖS CONSTANT The Eötvös constant is a constant 2.1×10^{-7} J/(K·mol^{⅔}) in the Eötvös rule, connecting the surface tension, the molecular weight, and the specific volume with the temperature deviation from the critical temparation.

EÖTVÖS NUMBER The Eötvös number is a dimensionless number measuring the importance of gravitational forces compared to surface tension forces, characterizing the shape of bubbles or drops moving in a surrounding fluid.

WEAK EQUIVALENCE PRINCIPLE
PROPORTIONALITY OF INERTIAL MASS & GRAVITATIONAL MASS

EÖTVÖS EXPERIMENT (EPF experiment, Eötvös-type experiment) a famous physics experiment that measured the correlation between inertial mass and gravitational mass, demonstrating that the two were one and the same, something that had long been suspected but never demonstrated with the same accuracy.

EÖTVÖS PARAMETER The Eötvös parameter is a measure in the Eötvös experiment *(a difference of the ratios of gravitational and inertial masses divided by their average for the two sets of test masses)*.

LABORATORY & FIELD INSTRUMENT

EÖTVÖS TORSION BALANCE (Eötvös pendulum) The ingenious device made it first possible to measure gravity gradients with unprecedented $10^{-9}s^{-2}$=1E accuracy. The Eötvös torsion balance (named as horizontal variometer by Eötvös) had a vertical torsion wire carrying a horizontal light bar. A platinum mass was attached to one end of the horizontal bar, while the other end carried a weight of equal mass suspended by a wire. The main feature of this instrument was that the two weights were not at the same level.

GRAVITATION ON A ROTATING PLANET

EÖTVÖS EFFECT It is the change in perceived gravitational force caused by the change in centrifugal acceleration resulting from eastbound or westbound velocity. When moving eastbound, the object's angular velocity is increased (in addition to the earth's rotation), and thus the centrifugal force also increases, causing a perceived reduction in gravitational force.

EÖTVÖS CORRECTION This is the correction necessary if the instrument is on a moving platform, such as a ship or aircraft.

GEODESY

EÖTVÖS TENSOR The Eötvös tensor is a 3×3 (x,y,z) symmetrical gravity gradient tensor, and its elements are the gravity gradients.

GRAVITY & MAGNETISM

EÖTVÖS LAW OF MAGNETISM (the Poisson-Eötvös relationship) This expresses the general link between gravity and magnetic anomalies.

ROLAND EÖTVÖS
HUNGARIAN BARON & SCIENTIST 1848–1919

At the top of Cristallo

PHYSICAL UNIT & NATURE FORMS NAMED AFTER R. EÖTVÖS

PHYSICAL UNIT

EÖTVÖS (unit) The eötvös (or eotvos) is a unit of acceleration divided by distance. The symbol of the eötvös unit is E.
1 eötvös = $1E=10^{-9}$ s^{-2}.

MINERAL

LORÁNDITE Lorándite is a mineral *(thallium arsenic sulfosalt)*, being used for detection of solar neutrino. It was discovered in 1894 and named after Roland Eötvös.

MOUNTAIN PEAK

EÖTVÖS PEAK (Cima di Eötvös, Eötvösspitze)
The Eötvös Peak is the second highest, or south-western Cadin peak in the Dolomites (2837m)

ROUTES & CAVES

VIA EÖTVÖS (aVia Eötvös Dimai) First climbing route of Croda da Lago. (Via Eötvös Dimai is named after his daughters.)

EÖTVÖS-ÚT (Eötvös Loránd-turistaút, Etveska, Eötvösova cesta)
A hiking trail above Banska Stiavnica (Selmecbánya, Schemnitz), named after Roland Eötvös (1896)

EÖTVÖS CAVES Aggtelek Karstic Mts and Krecsunesd / Crăciunești (Șura de Sus)

MOON CRATER

EÖTVÖS CRATER The Eötvös crater is the remains of a lunar impact crater on the far side of the Moon. It lies to the north-northwest of the walled plain Roche, and east-southeast of the equally ruined Bolyai.

ASTEROID

12301 EÖTVÖS The 12301 Eötvös is a main belt asteroid with an orbital period of 3.65 years. It was discovered in 1991.

Fruska Gora, Titel. Roland Eötvös sits in front of the tent

Much more Eötvös stereoslides can be viewed at the website:
www.eotvos100.hu
in various 3D digital formats (*Anaglif, Side by Side, Top and Bottom*). Nearly 1500 stereoscopic photos made by Roland Eötvös form a part of Mining and Geological Survey of Hungary (MBFSZ) Eötvös Loránd Memorial Collection.
Digital conversion was performed by Zsolt REGÁLY, Konkoly Thege Astronomical Institute, Research Centre for Astronomy and Earth Sciences, Hungarian Academy of Sciences (MTA CSFK CSI) 3D Numerical Astrophysical Laboratory, supported by National Cultural Fund of Hungary.

ORGANIZATION
PARTNERS: Hungarian Academy of Sciences, Eötvös Loránd University, Eötvös Loránd Physical Society, Association of Hungarian Geophysicists, Hungarian National Commission for UNESCO and many other organizations.
Physicists and earth scientists in the EÖTVÖS 100 Coordination Team (info@eotvos100.hu), Jenő SÓLYOM, Norbert KROÓ, András PATKÓS, József ÁDÁM, László SZARKA (Chair), Gábor ZELEI
PHOTOS: MBFSZ Eötvös Loránd Memorial Collection, 3D digital version: MTA CSFK KONKOLY (Zsolt REGÁLY)

NATIONAL RESEARCH, DEVELOPMENT AND INNOVATION OFFICE
MINISTRY FOR INNOVATION AND TECHNOLOGY
MINISTRY OF HUMAN CAPACITIES
nka NEMZETI KULTURÁLIS ALAP
PROJECT FINANCED FROM THE NKFI FUND

1EOTVOS

2019 ROLAND EÖTVÖS COMMEMORATIVE YEAR

1EOTVOS