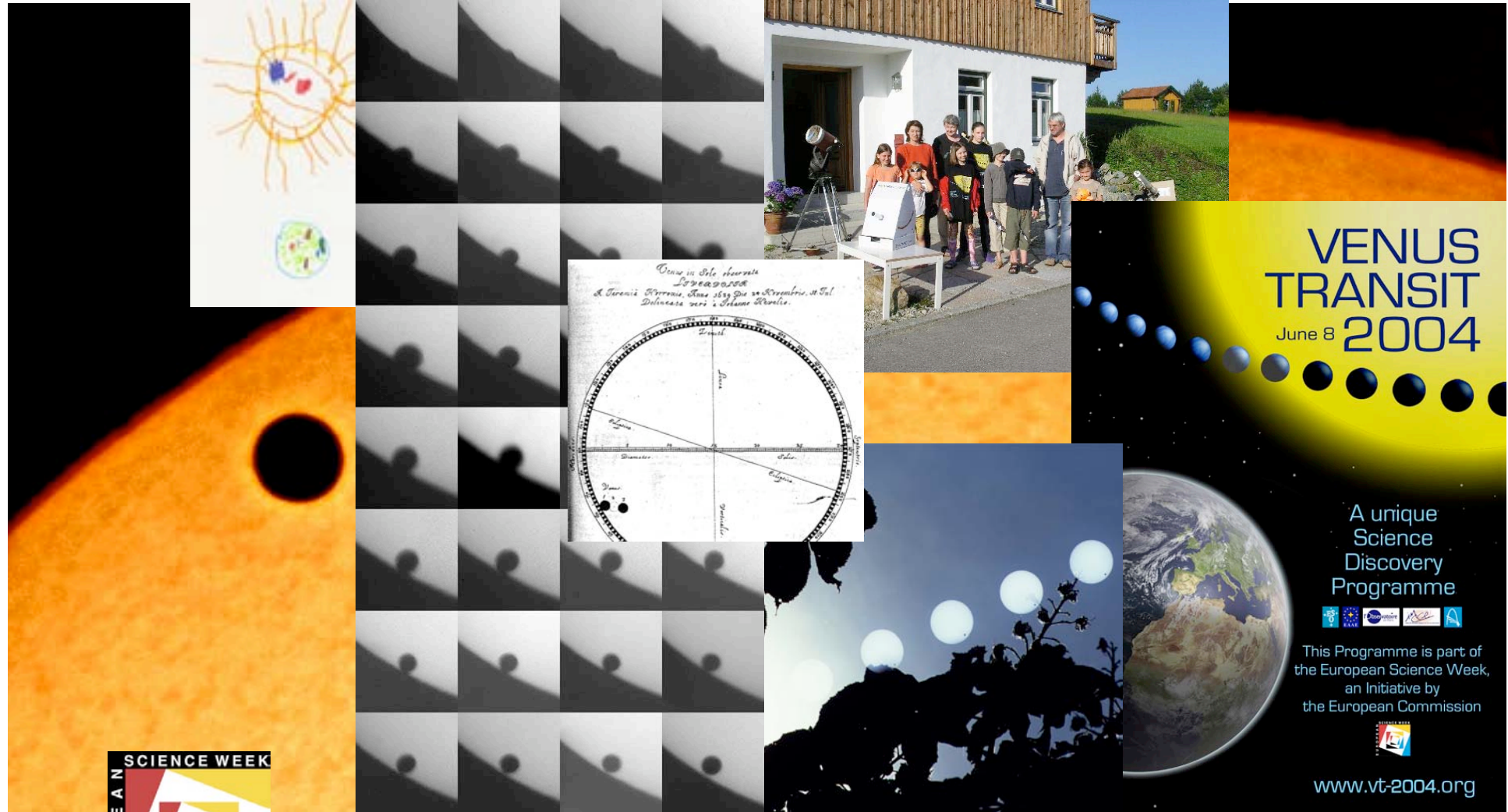


Start-Up of the VT-2004 Programme – from Idea to VT-Day

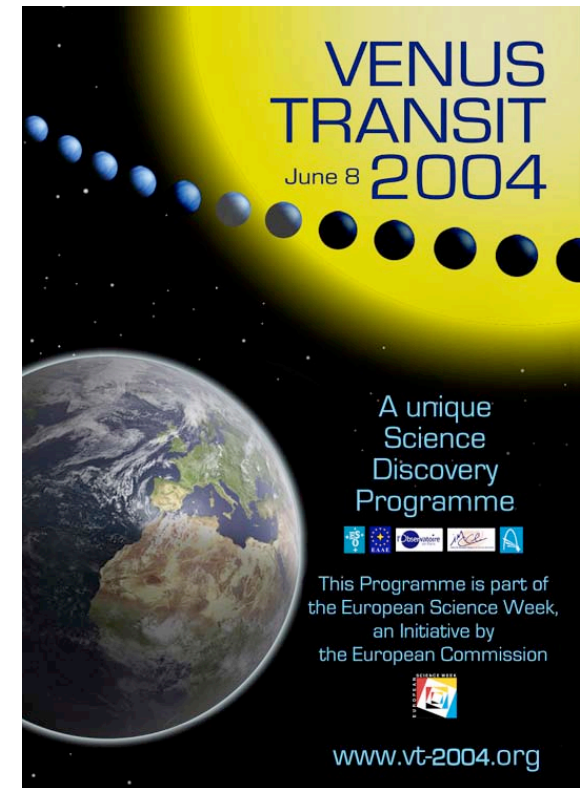


Richard West
VT-2004 ISC & ESO

www.vt-2004.org

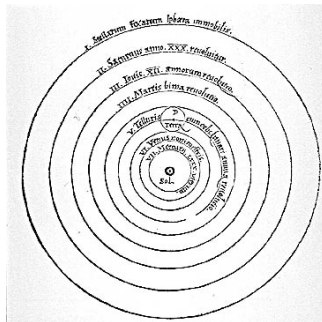
Start-Up of the VT-2004 Programme – from Idea to VT-Day

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up



Richard West
VT-2004 ISC & ESO

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up



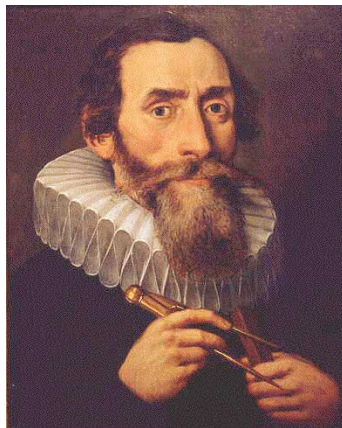
How Big is the World?

Copernicus (1543)

-The planets move around the Sun

Tycho Brahe (~1576-96)

-Very accurate observations of the planets' motions



Johannes Kepler (~1600-31)

-The orbits of the planets and their relative sizes

We just need to measure ONE distance in km in order to know the size of the solar system!

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

Admonitio ad Astronomos. 1631. 589

refractio radiorum solarium nulla pertingit, aut penitus evanescet, aut vix conspici cinereo colore poterit, praesertim circa medium.

De aliis Solis interseptionibus, quae hoc anno 1631. contingent.

Scripseram *Admonitionem* ad curiosos rerum coelestium satis prolixam de incursu Veneris et Mercurii in discum Solis mensibus Novembri et Decembri, eratque animus, eam admonitionem huic Ephemeridi in vestibulo praemittere. Cum vero Bartschius, collega meus in computandis Ephemeridibus et nunc, quod felix faustumque sit, etiam gener, cui Ephemerida dederam Frankofurtum deportandam, cum is inquam moras sibi videret objectas in perficiendo itinere doleretque Ephemerida quo ego tempore promiseram non exhiberi posse publice, consilium cepit non ingratum, Admonitionem illam seorsim typis exscriptam nundinis autumnalibus Lipsensibus vulgo communicandi eaque opera temporis damnum pensandi. Ego itaque, receptis jam quas illi ferendas dederam Ephemeridibus, actum agere dedignatus sum, contentus admonitione hac entoris, ut paginam dictam apud bibliopolas requirat operique Ephemeridum (quod quidem per ejus paginae absentiam nihil de sua perdit integritate) si videbitur conjungat.

Haec „Admonitio“ bis typis excusa est, prius (1629) Lipsiae („Joan-Albertus Minzelius excudebat“), postea (1630) Francofurti „apud Godefridum Tampachium.“ Inscriptio editionis Lipsiensis talis est:

Joannis Kepleri,

Mathematici Caesarei etc.

De raris mirisque anni 1631 Phaenomenis,
Veneris puta et Mercurii in Solem incursu, *Admonitio* ad Astronomos
rerumque coelestium studiosos.

Which distance? How?

In 1629, Johannes Kepler informs his colleagues astronomers about transits of Mercury and Venus in front of the Sun in 1631

The transit of Mercury on November 7, 1631, was observed in Paris by Gassendi.

Kepler predicted a conjunction of Venus and the Sun on December 6, 1631. In reality, it happened 9 hours later than he predicted. It was observable only from Asia. No observations were reported of this transit.

The Background

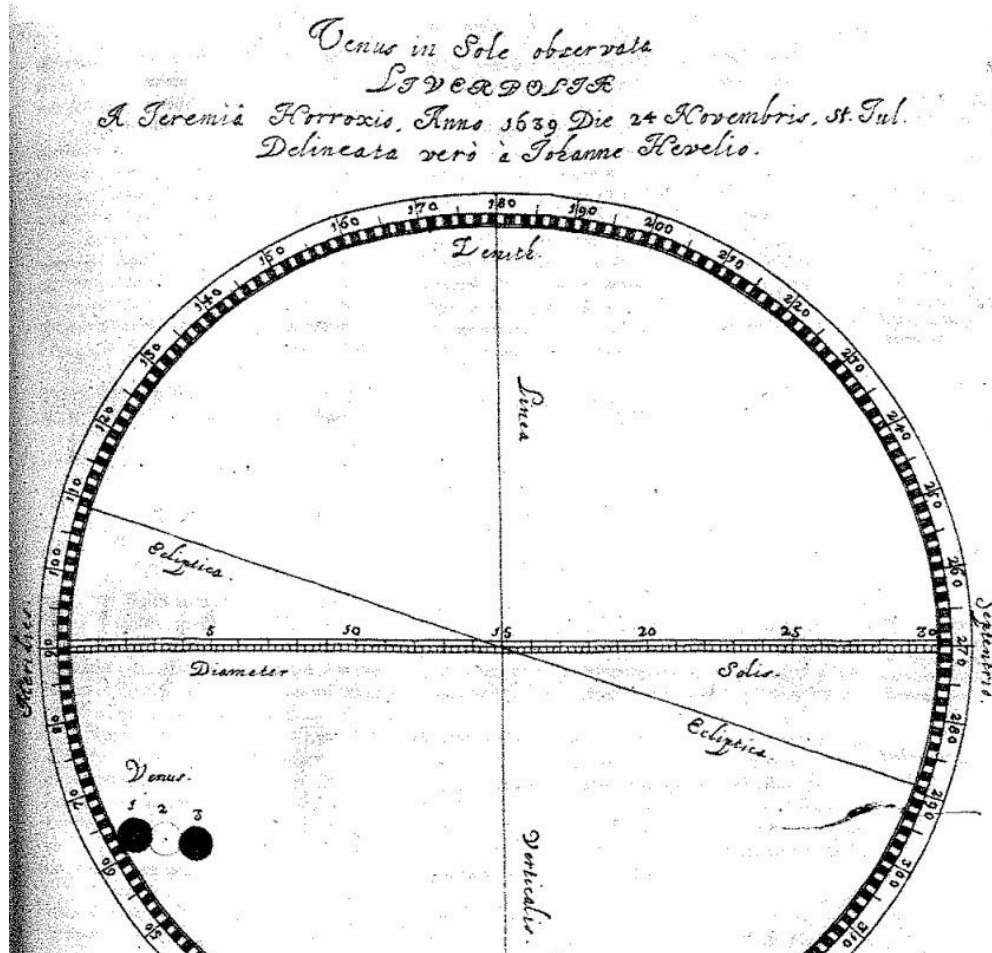
VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

Which distance? How?

Jeremiah Horrocks (1619-1641) predicted a “probable” transit of Venus on **Sunday November 24, 1639** (December 4 in the Gregorian calendar). He was lucky enough to observe it in Hoole (35 km north of Liverpool) half an hour before sunset.



The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

ARTICLE III.

Containing Doctor HALLEY's Dissertation on the method of finding the Sun's parallax and distance from the Earth, by the transit of Venus over the Sun's Disc, June the 6th, 1761. Translated from the Latin in Motte's Abridgement of the Philosophical Transactions, Vol. I. pag. 243; with additional notes.

There are many things exceedingly paradoxical, and that seem quite incredible to the illiterate, which yet by means of mathematical principles may be easily solved. Scarce any problem will appear more hard and difficult, than that of determining the distance of the Sun from the Earth very near the truth: but even this, when we are made acquainted with some exact observations, taken at places fixed upon, and chosen before-hand, will without much labour be effected. And this is what I am now desirous to lay before this illustrious society * (which I foretell will continue for ages) that I may explain before-hand to young Astronomers, who may perhaps live to observe these things, the method whereby the immense distance of the Sun may be truly obtained, to within a five hundredth part of what it really is.

It is well known that the distance of the Sun is supposed different by different Astronomers supposed different, according to the most probable conjecture from the best observations that each of them has made. Thus Aristotle supposed it to be 1200 semidiameters of the Earth: Kepler 3500 n

* The Royal Society.



Which distance? How?

The English scientist **Edmond Halley** (1656-1743) is the first to observe a complete Mercury transit in 1677 at the island of St. Helen. Following the idea suggested by Gregory in 1663, he develops a method to determine the distance to the Sun from the measurements of transit durations, as observed from two sites that are very far from each other.

His text is published in 1716 (in Latin: "Singular method to precisely determine the Sun's parallax or its distance to Earth by observations of Venus on the Sun"). He calls for an international collaboration of all astronomers to observe the Venus transit on June 6, 1761.

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

The Distance to the Sun!

The Venus Transit in 1761

Many Expeditions !

Tobolsk (Siberia)

Islands of Rodriguez and Mauritius (Indian Ocean)

Pondicherry, Tranquebar and Calcutta (India)

St. Helen Island (Atlantic Ocean)

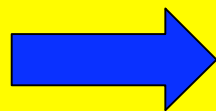
Cape of Good Hope (Southern Africa)

St. John (New Foundland)

Batavia (Indonesia)

Beijing (China)

+ all over Europe by many travelling scientists



a truly international effort!

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up



Venus Transit 2004
DOT – La Palma



The Aureole

First Physical Observations

A Venus "aureole" was first described by the famous Russian natural scientist **Mikhail Lomonosov** (1711 - 1765) in his "Apparition of Venus on the Sun, as observed from the Imperial Saint-Petersburg Academy of Sciences on May 26th, 1761". He correctly interpreted this phenomenon as the **refraction of the sunlight in an atmosphere surrounding Venus.**

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

The Distance to the Sun!

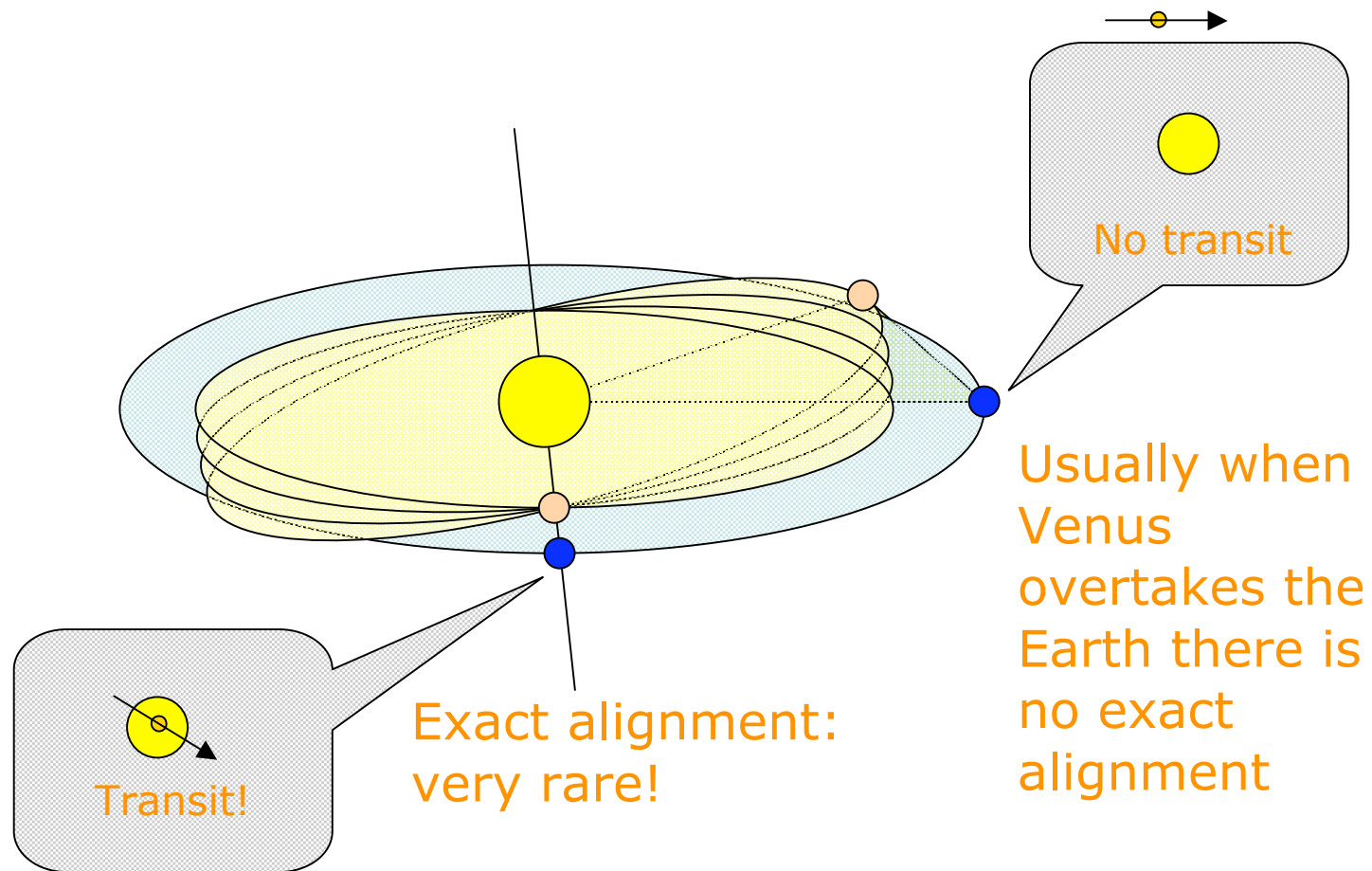
Results from Venus Transits
in the past centuries

1639	Horrocks	94,000,000 km
1761	Pingré and Short	138,540,000 km
1761/1769	Lalande and Pingré	151,217,000 km
1874/1882	Newcomb	149,670,000 km
~2000	Radar obs.	149,597,870.691 km

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

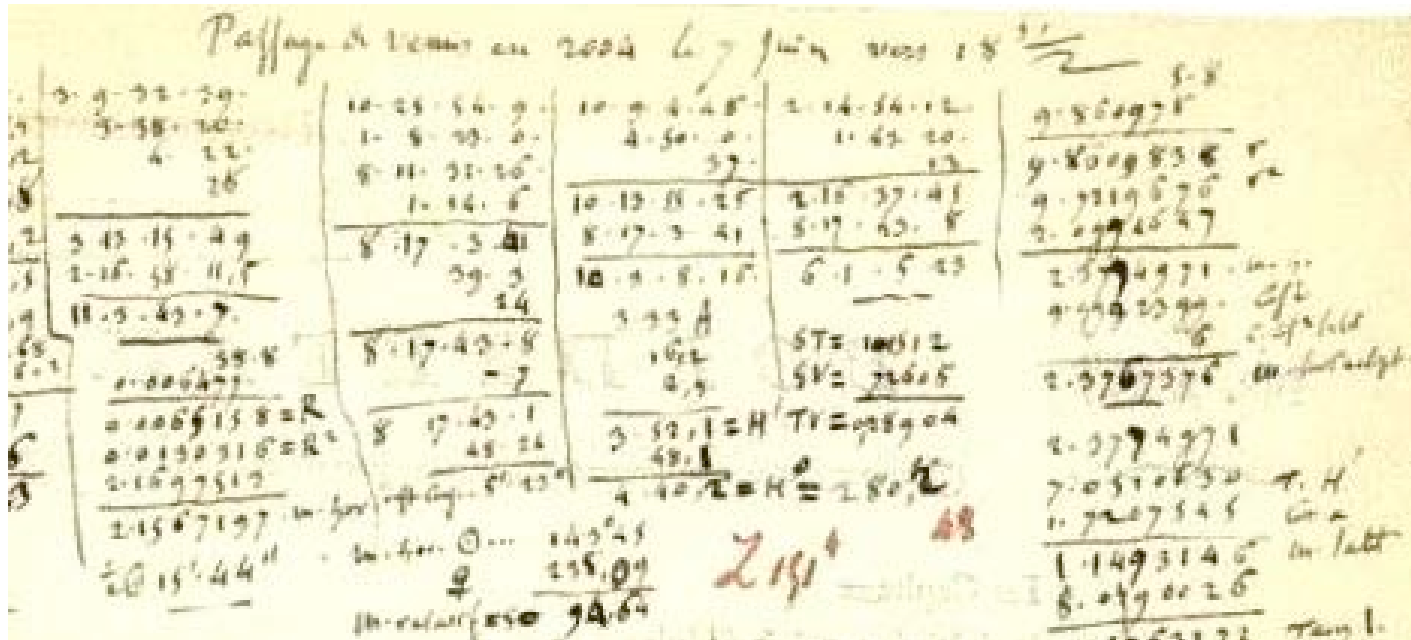
Venus Transits

do not happen very often!



The Background
 VT-2004 Start-Up
 June 8, 2004 – the VT-Day!
 VT-2004 Follow-Up

Preparing for the 2004 Venus Transit!



Around 1785, Jean-Baptiste Delambre (1749-1822), a student of Joseph-Jérôme de Lalande (1732-1807), recalculated all the Venus transits with the help of Lalande's new astronomical tables. This handwritten page by Delambre concerns the June 2004 transit.

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

Defining VT-2004 First Ideas – Mid-2002

A public science discovery programme

- Learn about the Solar System
- Learn about distances in the Universe
- Forward-looking science – Exoplanets
- Re-enact a historical scientific exercise
- Appreciate the scientific method
- Collectively obtain a scientific result based on geographically distributed observations
- History, philosophy, mathematics, etc
- Sociological aspects

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

Defining VT-2004 – Late 2002 The Partner Organisations

- European Southern Observatory (ESO)
- European Association for Astronomy Education (EAAE)
- Institut de Mécanique Céleste et de Calcul des Ephémérides (IMCCE)/Observatoire de Paris
- Astronomical Institute of the Academy of Sciences of the Czech Republic
- [National Nodes to be identified later]



The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

EC Application Abstract

Science and Society

European Science Week 2004

On June 8, 2004, planet Venus will pass in front of the Sun. This event, a “transit”, is extremely rare - the last one occurred 121 years ago. Easily observable in Europe, it will most certainly generate unprecedented attention from the media and the public. This project aims at **transforming curiosity into knowledge** and interest in European science through large-scale pedagogic action, specially geared towards the importance of uncertainty in scientific observations, the leading European role in the discovery of **extra-solar planets** and **the measure of the Universe**. This project will set up a **large international network** of individuals (teachers, students, amateur astronomers, etc.), and institutions (planetariums, science centres, etc.). It will encourage them to participate in real-time measurements of one of the most fundamental astronomical parameters, the distance from the Earth to the Sun. It will explain the relation of this event to a current front-line research area, the **search for extra-solar planets** by the transit method; the only one, which, in the near future, will enable the discovery of Earth-size planets and thus possibly, alien habitable worlds. The project will **promote international collaboration** throughout Europe, and also in Africa and Asia, by observing the same rare celestial event, debating it via web and adding local observational contributions to a large, common database.

The project is centred on the **delivery of the detailed explanation in all European languages of all aspects (scientific, technical, historical etc.)** of the event itself and its implication in the search for life, and on the **involvement of media, teachers and amateur astronomers** to ensure the highest return. The Internet will be the main vector of interaction. To emphasize the sociological importance of this event, a **video contest** will be launched. The project will be thoroughly **evaluated in terms of impact and management** in a Final Event during the Science Week.

“VENUS TRANSIT IN JUNE 2004: EXOPLANETS AND THE SIZE OF THE WORLD” – May 2003

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

Definition of VT-2004

The Main Goals

- **Transform curiosity into knowledge and interest in Science and the way it works**
- Sensitise to the basis of the measurement of the Universe
- Sensitise to the uncertainty of a scientific measurement
- Emphasise extra-solar planet research
- Sensitise to scientific steps (methods) and international collaboration
- Sensitise to the stellar nature of the Sun
- Invite the public to approach the history of sciences
- Disseminate information about the structure and movements in the Solar System

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

Main Target Groups

- Students and Teachers
- Amateur Astronomers
- The Media
- General Public

Defining VT-2004



VENUS
TRANSIT
June 8 2004

A unique
Science
Discovery
Programme

This Programme is part of
the European Science Week,
an Initiative by
the European Commission

www.vt-2004.org

The poster features a black background with a yellow glow at the top. A series of blue and black circles representing planets is visible. A large image of Earth is shown on the left. Logos for various organizations are present, along with text describing the program as part of the European Science Week.

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

Defining VT-2004

Key Elements

- Consult Experts from Target Groups
- Establish (or Rely on Existing) Networks
- Web-based Information and Reporting System
- Design Teaching Materials
- Include Public Competitions
- Establish Major Observing Campaign for All
- Strong Real-Time Actions on June 8, 2004
- Evaluate (“Venus Transit Experience” Nov. 2004)
- Produce and Disseminate Final Report with “Lessons Learned” and Recommendations

The Background
 VT-2004 Start-Up
 June 8, 2004 – the VT-Day!
 VT-2004 Follow-Up

The National Nodes

- Programme promotion
- Technical advice
- National Website
- National Activities

Prehod Ven Javna opazov

1. AD Orion bo organizir **Mariboru** celoten čas tr
2. Astronomski observator bosta opazovanje organ **Maribor**, Koroška 160.
3. V **Kamniku** bo javno opazo Maistra (tudi na strehi

ЕВРОПЕЙСКА ОБРАЗОВАТЕЛНА ПРОГРАМА
ПАСАЖ НА ВЕНЕРА 8 ЈУНИ 2004

За програмата Информација Екипи Наблюдение 8 Јуни Резултати Конкурс Галерија Връзки Организатори

ЗА ПРОГРАМАТА

ВНИМАНИЕ - ПАСАЖЪТ НАБЛИЖАВА!!! Прочетете следната информация!

Европейската образователна програма "Пасаж на Венера 2004" има за цел да предизвика интереса на младите хора от Европа, на любителите - астрономи и на широката общественост към едно много рядко и красиво астрономическо събитие с огромно значение в астрономията.

На 8 юни 2004 година планетата Венера ще мине пред диска на Слънцето. Тази необикновена среща, това "проминане" се наблюдава много рядко - предното преминаване е било преди 121 години. Всяко преминаване е предизвикало голям

Download Das war der Venus Transit

Nationaler Knoten für Österreich

Das **Sonnenobservatorium Kanzelhöhe** der Universität Graz wurde von der ESO als nationaler Knoten ausgewählt um Veranstaltungen und Informationen in Österreich zu koordinieren. Sternwarten, Astronomische Vereinigungen aber auch interessierte Laien sind eingeladen mitzumachen.

Sonnenobservatorium Kanzelhöhe
 A-9525 Trofzen
 Tel.: 04248 2717
 Fax: 04248 2717 15
<http://www.kso.ac.at>
venus@kso.ac.at
 Kontakt: **Wolfgang Otruba**
 Weitere Infos zum

UNIVERSITY OF CENTRAL CASHIRE

beseech you, therefore, with all my strength, to attend to it diligently . . . "

Jeremiah Horro

Istituto Nazionale di Astrofisica - INAF

il passaggi di Venere

Ti è rimasto qualche dubbio? Servizi clic qui!

Il passaggio di Venere su è terminato, è durato oltre 13 ore, dalle 7.20 alle 13.23.

Grazie alle favorevoli condizioni meteo si è potuto vedere da tutt'Italia.

Se vuoi vedere il filmato dell'evento vai nella sezione "Cosa si è visto" che trovi qui sotto

per la stampa

cosa accadrà

il passaggio in Italia

8 giugno 2004: il passaggio di Venere

come osservare

cosa si è visto

iniziativa INAF

€50 per scuola e amatori

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

VT-2004 Preparations

Advisory Meetings and Related Goals

- With Teachers (Luxembourg), January 2004
- With Media (Munich), March 2004
- With National Nodes (Munich), April 2004
- With Amateur Astronomers (Brandys), May 2004

- To obtain good advice on how to serve the needs of the various communities and groups
- To sensitize these communities to the many opportunities of the Venus Transit 2004

The Background

VT-2004 Start-Up

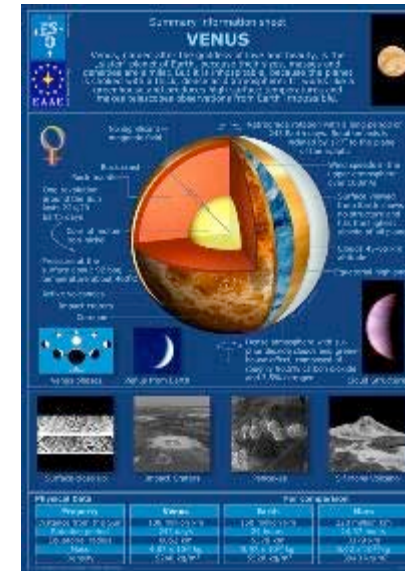
June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

VT-2004 Preparations

Lines of Action - Materials

- VT-2004 Website with many different sections
- Teaching materials
- Promotional materials, e.g.,
 - Posters
 - T-shirts
 - Press Releases
 - Stock footage for TV



The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

Support to the Media

- 8 Press Communications
- High-End Animations for broadcasters and stock footage
- 33 Information Sheets (short and long versions)

VT-2004 Preparations

ESO Press Release 03/04

16 February 2004

For immediate release

Announcing the Venus Transit 2004 (VT-2004) Programme

Rare Celestial Event to be Observed by Millions

Summary

On June 8, 2004, Venus - the Earth's sister planet - will pass in front of the Sun. This event, a 'transit', has not been observed since 1882, 122 years ago. Easily observable in Europe, Asia, Africa and Australia, it is likely to attract the attention of millions of people around the world.

On this important occasion, the **European Southern Observatory (ESO)** has joined forces with the **European Association for the Education of Astronomers (EAAE)**, the **Institut de Mécanique Céleste et de Calcul des Éphémérides (IMCCE)** as the **Astronomical Institute of the Academy of Sciences of the Czech Republic** to establish the **VT-2004 Education Programme**. It is supported by the **European Commission** in the framework of the **Education and Culture Programme**. The programme takes advantage of this extraordinary celestial event to expose the public - in a well-considered, interdisciplinary way - to fundamental issues at the crucial interface between society and basic science.

What is TIME?

Everybody knows what time it is, but nobody can tell what it is.



Our evolving Universe has four essential ingredients for life with great precision.

Measurement of time. Any regularly repeated phenomenon can be used as a unit of time:

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

The VT-2004 Network

Regions in Europe

Austria
Belgium
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy

Latvia
Luxembourg
FYR Macedonia
Malta
Moldova
Monaco
Netherlands
Norway
Poland
Portugal
Romania
Russia
Slovakia
Slovenia
Spain

Sweden
Switzerland
Turkey
United Kingdom
Yugoslavia (Serbia and Montenegro)



The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

The VT-2004 Network

Regions outside Europe

Algeria

Australia

Brasil

Canada

Egypt

India

Japan

Mexico

New Zealand

P.R.China

Sri Lanka

Thailand

United States of America

Uruguay

Venezuela



Aymen Ibrahim - Egypt

ด.ญ. นิตยา
ไกรศีลย์
Thailand

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

The Website

Information (diff. levels)
Registration of Observers
Commented Webcast
Live Reporting of Results
Photo Archive
Art Gallery
Theme of the Week

The VT-2004 website was first set up in June 2002 and was expanded as more features were added. This development resulted in loss of navigability. A major upgrade of the top-level pages was therefore performed in early April 2004.

VT-2004 Preparations



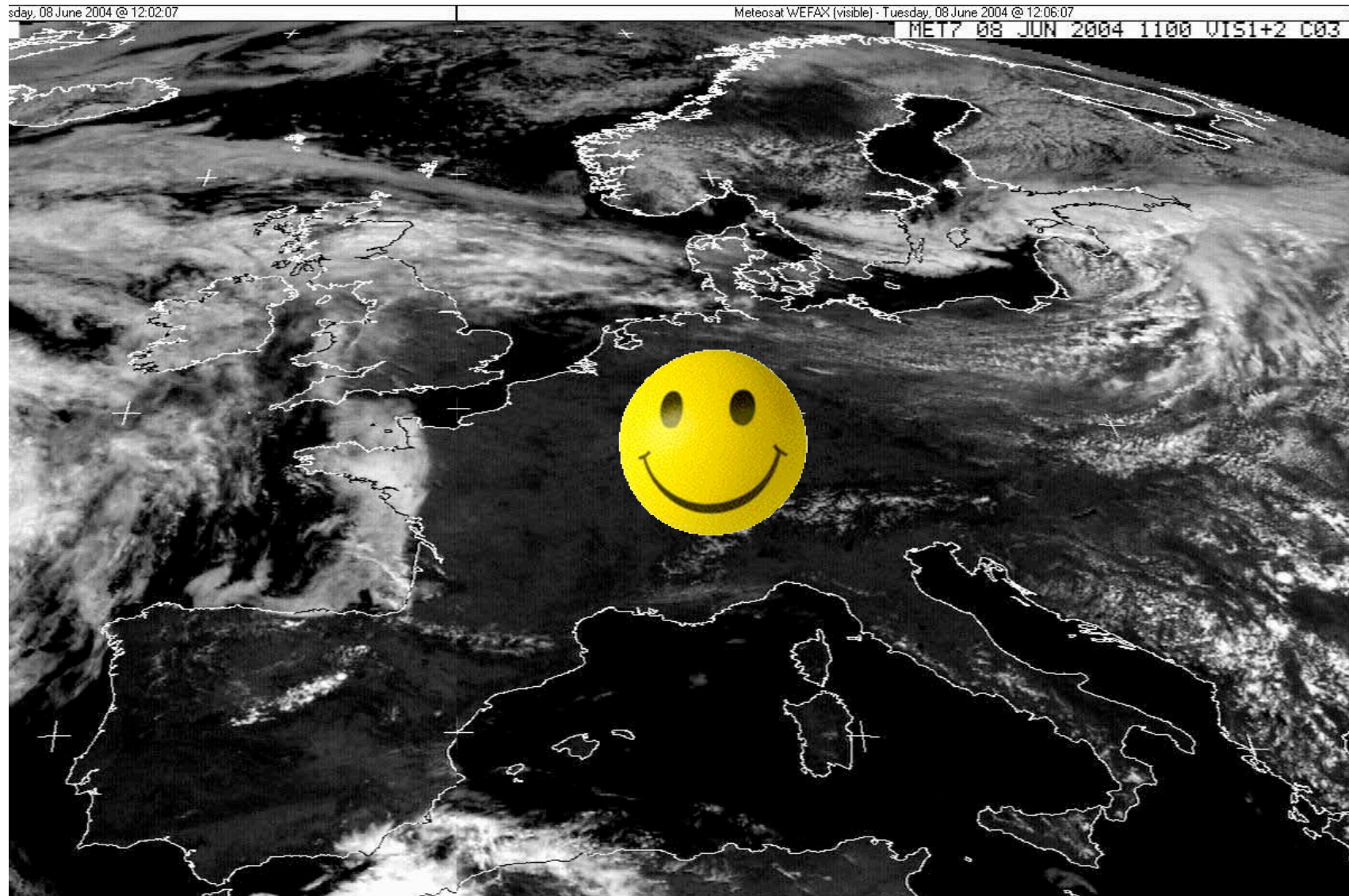
The screenshot shows the ESO website interface for the Venus Transit 2004 campaign. The header features the ESO logo and the text "EUROPEAN SOUTHERN OBSERVATORY" with the tagline "ESO. Astronomy made in Europe". Below the header is a navigation menu with links for "ESO OUTREACH", "HOME", "INDEX", "HELP", "NEWS", "SEARCH", and "GO!". A search bar is also present.

The main content area is divided into several sections:

- Left Sidebar:** A vertical menu with links for "ESO", "OUTREACH", "EDUCATIONAL OFFICE", "PROGRAMMES", "CATCH A STAR", "FAST 2002", "QUESTIONNAIRE 2001", "VENUS TRANSIT 2004", "Introduction", "Latest News", "Background", "Themes of the Week", "Observing Campaign Results", "Safety!", "Students and Teachers", "Media", "Amateurs", "Kids' Area", "VT-2004 Network", "In Your Region", "How to Participate", "Video Contest", "Gallery", "Writings", "Photos", "Animations", and "Day of the Transit".
- Top Right:** A row of logos including "VENUS TRANSIT 2004", "CONEXUS WEST", "ESO", "EAAE", "l'Observatoire de Paris", "IMCCE", and "ESO".
- Center:** A banner for "Enjoy the Venus Transit via the Central Display: LIVE Images & Comments" with a "GO TO THE" button.
- Right Column:** A section titled "The Venus Transit 2" with a welcome message and a link to "The Transit is". Below this is a section titled "Theme 13 (Week of November 1 - 7, 2004): The Distance to the Sun" which includes a world map showing the locations of registered participants and a text block explaining the goal of the campaign: "determination of the distance to the Sun (the Astronomical Unit) by collecting timings of the four contacts made by these observers and combining them in a calculation of the AU." Below the map is a link to "Here is a brief overview of the impressive results. All details about the calculations are available in a number of reports, now accessible via the 'VT-2004 Observing Campaign Results' webpage." and a note: "A large number of groups of observers registered; at the end, there were".
- Bottom Right:** A section titled "November 2, 2004:" with a link to "ESO Press Release 26/04" and a note: "Today, ESO Press Release 26/04 has been published. In addition to announcing the results of the VT-2004 Observing Campaign, it contains information about the 'Venus Transit Experience' conference that will take place in Paris on November 5-7, bringing together the main participants of this project from many different European countries. A main aim is to discuss the impact of the project, identifying possible differences from country to country and showing how to share good practices for the future." Below this is a section titled "October 29, 2004:" with a link to "ESO Press Release 26/04" and a note: "The full report on the determination of the distance from the Earth to the Sun (the Astronomical Unit) by means of observations of the Venus Transit on June 8, 2004, by more than 2500 groups of observers is now available on the ESO website." and a link to "ESO Press Release 26/04".

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!

Weather Conditions



The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

Life at the VT-2004 Center

ESO HQ – Garching (Germany)

- starting at 02:30 in the morning
 - 5 specialists (astronomers + IT)
 - 2 students from European School
 - AGAPE observing team outside
 - technical service team on call
 - end of hot phase at ~15:00
-
- many hundreds of mirror sites
 - select and display images/videos
 - write related comments
 - interact with VT-2004 FORUM
 - react on suggestions
 - visits by media (print, TV)



The Background
 VT-2004 Start-Up
 June 8, 2004 – the VT-Day!
 VT-2004 Follow-Up

The Central Display

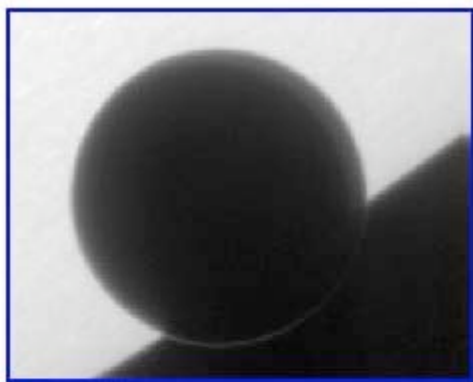
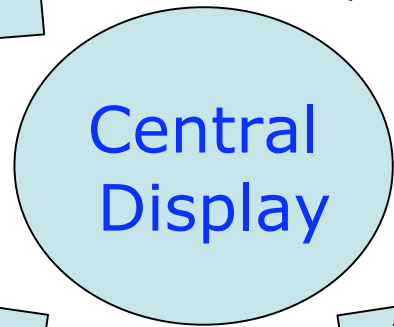
Last update: 2004 Jun 08 09:03 CEST
 (this page refreshes automatically)

VT-2004 No. of registered participants :	2043
No. of observers with timings :	49
No. of timings sent :	82
Official value of 1 AU :	149597870 km
Calculated AU :	152889969 km
Dispersion :	± 2618172 km
Absolute Difference :	3292099 km
Difference as percentage:	2.201 %

On-line
 AU Calculation



Agape – ESO HQ



Dutch Open Telescope
 June 8, 2004, 11:09 UT
 Canary Island, Spain

Primary Partner
 Observatories

Webcasts



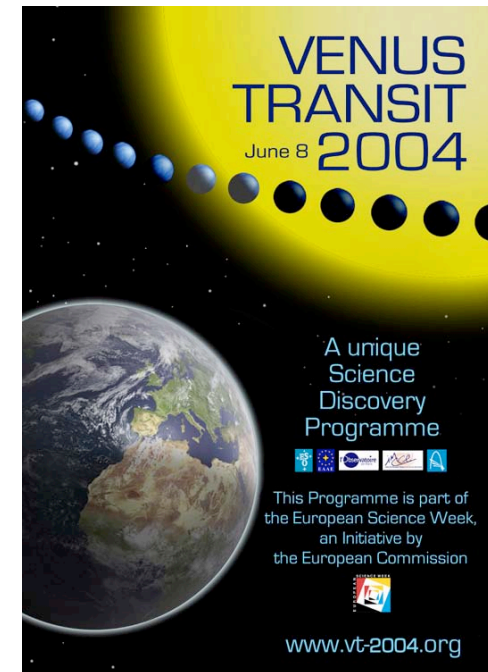
Trondheim-2 Norwegian Network
 showing Venus at the edge!
 June 8, 2004, 05:40 UT
 Trondheim (Norway)



The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

Impressive Numbers !

- 55 m webhits/8 hrs
- 1.75 Terabytes delivered
- 75 m webhits in total
- ~240 “regions”/countries on all continents
- ~5 m webhits in UK, Germany etc.
- Photo Archive with ~600 photos (some animated)
- Video Archive with ~20 video sequences
- Art Gallery with >400 (children’s) drawings
- 2763 registered observing teams
- 4550 contact timings received from 1510 teams



The Astronomical Event
 The Venus Transit 2004 Programme
 VT-2004 Today
 VT-2004 and the Science Week



The Distance to the Sun

Method	No. of timings	1 Astronomical Unit (km)	Difference from "true" value (km)
On-line (constrained)	4367	149,529,684 ± 55,059	-68,186
Post-transit (non-constrained)	1066	149,507,347 ± 173,437	-90,523
Post-transit (non-constrained)	583	149,608,708 ± 11,835	+10,838
Delisle	4386 pairs	149,840,958 ± 310,577	+243,088

The Background

VT-2004 Start-Up

June 8, 2004 – the VT-Day!

VT-2004 Follow-Up

After the Transit

- Drawings received until June 30 (prizes)
- Contact timings received until July 10
- “Photo of the Day” until August 8
- “Theme of the Week” from August 9
- Video Contest entries until September 15
- Video Laureates announced on October 6
- Photos received until October 15
- “Venus Transit Experience” – November 5-7, in Paris, with evaluation and recommendations for the future
- Final Report by January 2005 (incl. DVD)
- Travels by Video Contest winners early 2005

The Background
VT-2004 Start-Up
June 8, 2004 – the VT-Day!
VT-2004 Follow-Up

I think that...

The VT-2004 programme was:

- a great and enriching, unique experience
- a lot of hard work by many dedicated individuals
- a very ambitious undertaking, uniting a large number of people of all ages, from many countries and from all parts of society
- with a major impact within Europe (but less outside)
- not without some shortcomings, e.g., not completely successful in spreading the message and gaining wide support in all countries and regions,
- but an extremely useful **pilot project** by which much experience has been gained for “the next time”!



THANK YOU!

The VT-2004 programme owes its success, in particular, to:

- **Michel Mayor**, co-discoverer of the first known exoplanet, who in March 2002 urged ESO to “do something in connection with the Venus Transit in 2004”
- the **European Commission** for providing important resources without which VT-2004 could not have been realised in the way it was
- the **management and staff of the participating organisations** for their wholehearted encouragement and support
- great people at the many **VT-2004 National Nodes**, who provided indispensable inspiration and organisation at the national and regional level
- very generous and helpful **hosts of the main VT-2004 meetings** in the Czech Republic, France, Germany and Luxembourg
- legions of dedicated **teachers and students** at Europe’s schools
- innumerable, highly motivated **amateur astronomers and members of the public**
- hundreds of **media people** and other **science communicators** who conveyed the great excitement
- wonderful, inspiring and hard-working colleagues on the **VT-2004 International Steering Committee**
- and, not least, those famous **scientists and travellers of the past** who paved the way for us

