

United Kingdom Hydrographic Office

HM Nautical Almanac Office

The Future of Almanac Services An HMNAO perspective ...

Journées Systèmes de Référence Spatio-Temporels

"Recent developments and prospects in ground-based and space astrometry"

Pulkovo Observatory, St. Petersburg: 22-24 September 2014

Steve Bell, Susan Nelmes, Paresh Prema & James Whittaker

Session 5: 24th September 2014



This talk ...

History

- Examples of HMNAO Services
- Current practice
 - Paper
 - Web based

Next generation data services

- Web based
- Mobile Apps

Future services

• What might they be ...



History (I)

- Earliest texts considered to be almanacs go back to second millennium BCE – hemerologies and parapegmata
- Babylonian, Greek and Islamic almanacs – zijs and tables
- Medieval almanacs Regio-Montanus (1472)

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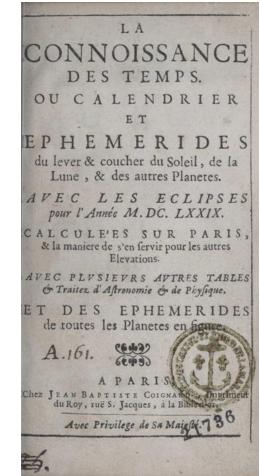
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History (II)

Early Astronomical Ephemerides

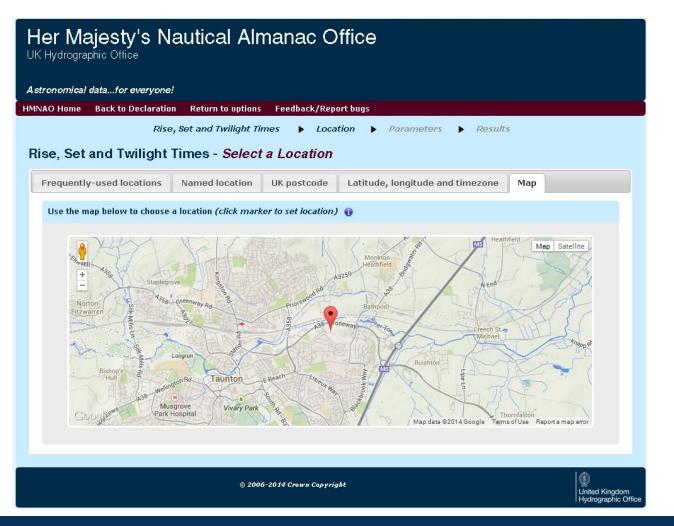
- La Connaissance des Temps ou calendrier et éphémérides du lever & coucher du Soleil, de la lune & des autres planètes, Picard (1679)
- Astronomische Ephemeriden, Hell (1757)
- The Nautical Almanac and Astronomical Ephemeris, Maskelyne (1767)
- Berliner Astronomisches Jahrbuck, Bode (1776)
- Almanaque Nautico (1792)



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One of the location entry methods for Websurf – HMNAO's dynamical data resource

HMNAO Services (I)



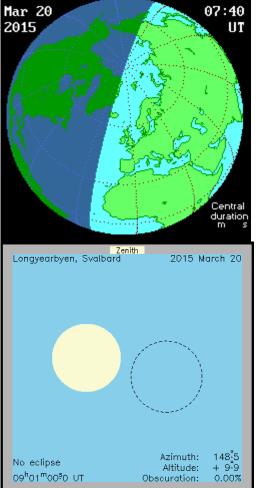


HMNAO Services (II)

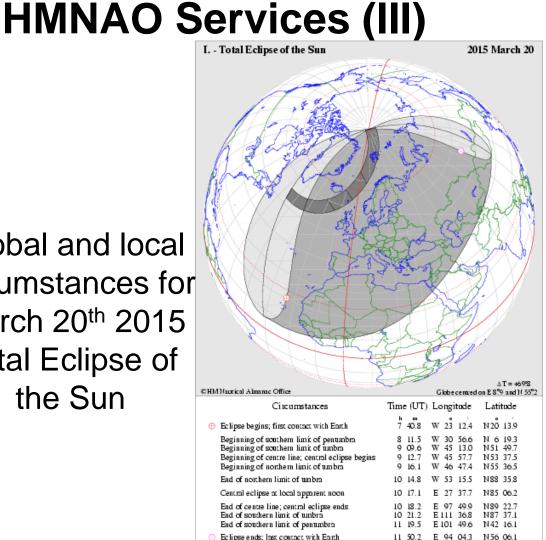
Visibility of the New Crescent Moon for 2014 June 27 (Ramadan 1435 AH) W140° W120° W100° W80° W60° W40° E60° E120° E140° E160° E180° W160° W209 E40° E80° 100° N60 22 14 (18 0 N409 N40⁴ Visibility of N20° the new 00 crescent S20° S20° moon for S40' S40° 10 Ramadan W180° W140° W120° W100° W60° W40° W20° 0° E20° E40° E60° E80 E100° E120° E140° E160° E180° 160° W80° 2014 New Moon occurred at 2014 June 27 at 08:08 UT Age of the Moon in hours at the "Best time" Age of the Moon at first visibility with the naked eye = 19.32 hours Age of the Moon at first visibility with a telescope = 14.94 hours New Crescent Moon Visibility Key - Colour Coding of Areas - Easily visible to the naked eye - Will need optical aid to find the crescent moon D B - Visible to the naked eye under perfect conditions - Not visible with a telescope C - May need optical aid to find the crescent moon initially F - Not visible - below the Danjon limit Moon prior to conjunction (new moon) Moon sets before the Sun Predicted location of first visibility with the naked eye Predicted location of first visibility with a telescope



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Global and local circumstances for March 20th 2015 Total Eclipse of the Sun

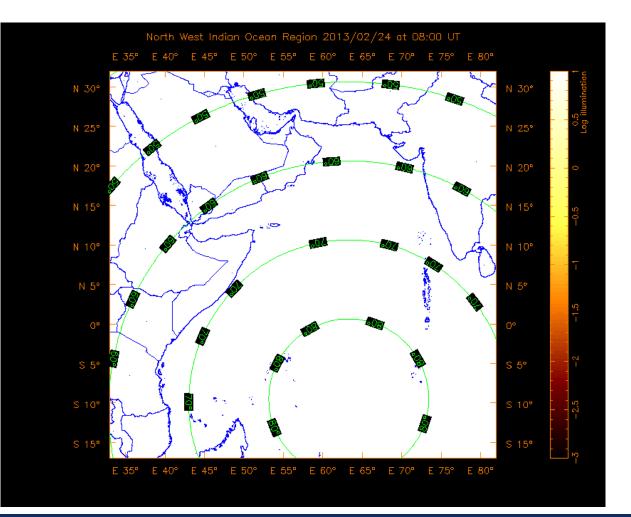


Eclipse ends; last contact with Earth

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HMNAO Services (II)

Ground Illumination data for maritime activities





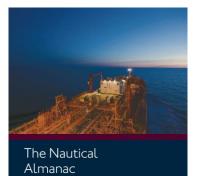
Paper

- User friendly
- Archival
- Expensive / Distributor chains

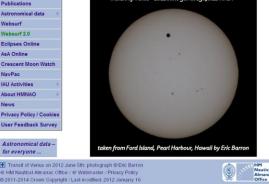
Web

- Need internet access
- Lack of flexibility
- Access to large amounts of data
- Ephemeral

Current Services (I)









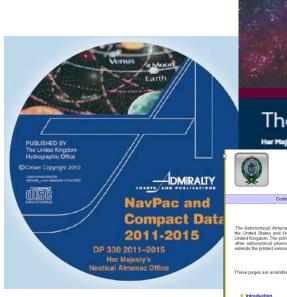
Current Services (II)

Hybrid Publications

- e-publications e.g. e-NA
- pdf only publications e.g.
 UKAA

Software

- NavPac
- Paper + Web
 - AsA Online





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Diary of Phenomena in iCalendar forma



Next Generation Services



- SOAP / REST services
- Access by flexible geographical tools / location sensitive software
- Customisation of web pages on a per user basis

Mobile apps

- Services that do not require large amounts of data
- Creative presentation of data
- Location / Orientation sensitive
- Augmented reality



Future Services ...

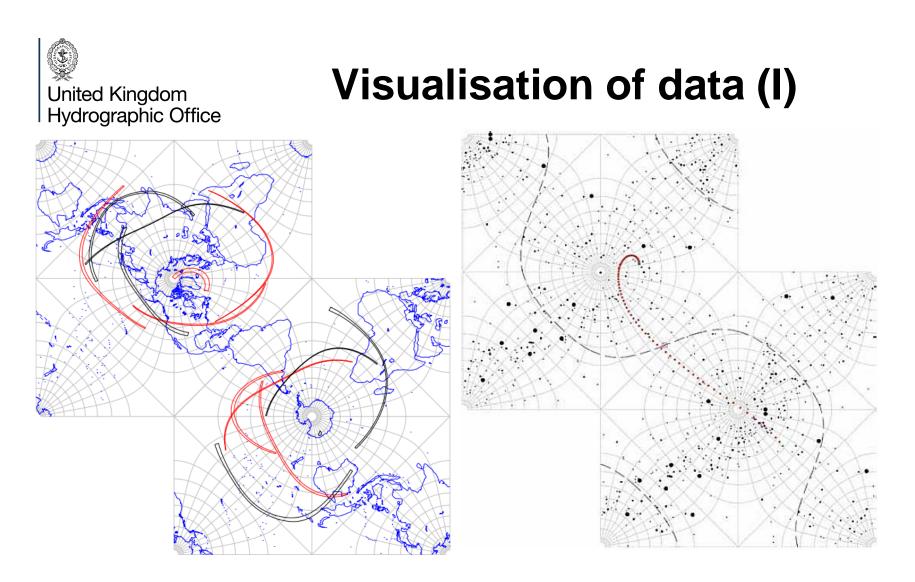
Delivery of data by different means & methods

- Youtube
- Repackaging with other data e.g. e-Navigator
- Make more use of data visualisation
- More flexible licensing of data to make creation of new products simpler

Standards

• UT1/UTC – Leap Seconds

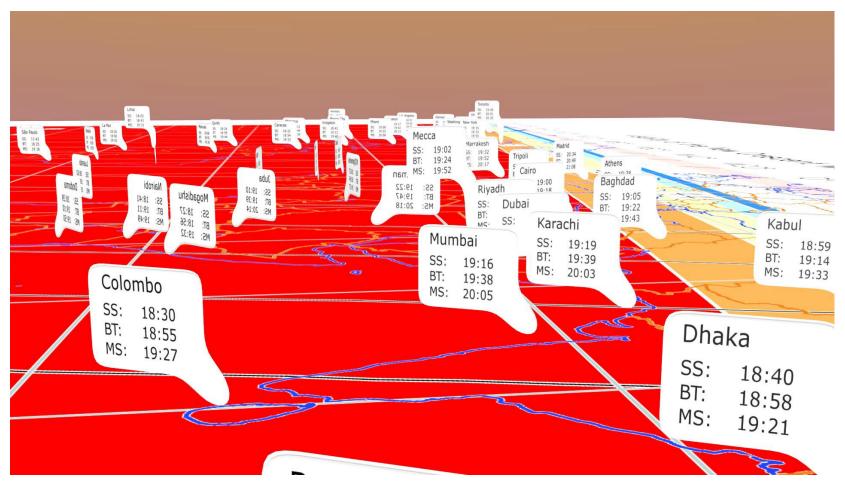




See http://astro.ukho.gov.uk/data/tn/naotn75.pdf



Visualisation of data (II)





Thank you / спасибо



