

# NASA's 'World Wind' Planetary Visualisation software identifies proposed site of ancient Ithaca

- **Homer's description of ancient Ithaca now believed to be accurate**
- **Former island was 'furthest to the west' all along**
- **Massive earthquakes and landslides explain the enigma**
- **Free NASA software can be downloaded to track the discovery**

At a recent Press Conference in London a radical new solution was presented for the 3,000-year old enigma of the location of the Greek hero Odysseus' island of Ithaca that is described in such detail in the poet Homer's *Odyssey*. Within 24 hours the news of this discovery had been relayed by over 100 newspapers, TV and radio stations world-wide. Since then the international project team has delivered televised seminars about the discovery to audiences in London, Washington, Athens and Kefallinia.

In their October 2005 book '*Odysseus Unbound - The Search for Homer's Ithaca*', the team members Robert Bittlestone (Chairman of the management consultancy Metapraxis), James Diggle (Professor of Classics at Cambridge University) and John Underhill (Professor of Geology at Edinburgh University) set out strong evidence that ancient Ithaca was located on the western peninsula of Kefallinia (Cephalonia), an area called Paliki, not on the Greek island that is today called Ithaki. The crucial part of this evidence is the proposal that the isthmus of Thinia that separates Paliki from the rest of Kefallinia was formerly a marine seaway which has been infilled by catastrophic rockfalls triggered by earthquakes and land uplift.

## **World Wind software provides a 3D view of ancient Ithaca**

NASA's World Wind planetary visualisation tool integrates global satellite images with a comprehensive database of terrain height values. This information is used by a 'virtual reality' interface that enables users to fly around the world to any location in real time and to visualise the landscape in three dimensions. The mouse is used as a joystick to zoom in and out and to tilt, pan and rotate the terrain as desired.

'World Wind' has played an important part in this discovery. Recent enhancements to World Wind now enable anyone equipped with a suitable personal computer to download the latest satellite imagery and to 'fly round' the proposed site of ancient Ithaca, observing at first hand the effect of the catastrophic landslides that are believed to have infilled the ancient marine channel that separated it from the adjacent land mass.

All the following images have been captured from World Wind. Advice on downloading the software and choosing the correct settings is provided at the end of this document.



**Fig. 1. NASA World Wind “Blue Marble” satellite image of the eastern Mediterranean.** The submarine collision between the African and Eurasia continental plates runs diagonally across the centre; the island of Zacynthos lies just north of centre and Kefallinia is the island to its north.

In Figure 1 NASA’s World Wind software portrays the mainland of Greece and its western island of Kefallinia. Bathymetric data highlights the submarine tectonic collision between Europe and Africa. In the region of Kefallinia the African plate is moving towards the north-east, sliding past the Eurasian plate which is moving to the south-west. The African plate is also sinking beneath the Eurasian plate, pushing the region of Kefallinia upwards. Major earthquakes here have been recorded for the last few centuries at an average interval of about 50 years: the last to impact the population severely was in 1953.



**Fig. 2. NASA World Wind “Geocover 2000” satellite image of Kefallinia and modern Ithaca (‘Ithaki’ - to the north-east).** The peninsula to the far west of Kefallinia is called Paliki and the isthmus that separates it from the rest of the island is called Thinia.

Homer says that “Ithaca itself lies low, furthest to sea / Towards dusk [i.e. west]; the rest, apart, face dawn and sun [i.e. east].” [*Odyssey* 9.25-26]. But on the World Wind image of Figure 2 it is clear that today’s island of Ithaki lies to the east of Kefallinia, not furthest to the west. Did Homer therefore make a mistake about this? Almost every scholar since Eratosthenes (c. 250 BC) has thought so, until 2005 AD.



**Fig. 3. NASA World Wind 3D close-up of the southern end of the Thinia isthmus of Kefallinia.** The land on the left of the image (west) is called Paliki: the isthmus (centre) is called Thinia; the land to the right (east) is the rest of Kefallinia. Today's island of Ithaki lies at the top centre, to the north-east.

In Figure 3 World Wind has been used to view Kefallinia from the south-west, looking north-east towards modern Ithaki in the distance. In the centre of the image the low-lying narrow isthmus of Thinia lies between mountains that on the east rise to a height of 1 kilometre. Although these mountains descend steeply to the sea elsewhere in eastern Kefallinia, at the Thinia isthmus they join up in a shallow curve to the western side (Paliki). Much of the material in this isthmus is loose aggregate that has fallen from the mountains above in a series of catastrophic earthquakes.

### **A single World Wind image shows the landslip and 'low-lying' Paliki**

Figure 4 is a World Wind image looking southwards across western Kefallinia. To the left of centre lies the Thinia isthmus and on the right is the Paliki peninsula. The landslip area is marked by the abrupt change in the steep gradient of the mountains. The evidence accumulated to date suggests that before these landslips occurred, a narrow sea channel may have existed between Paliki and the rest of Kefallinia.

If further geological tests support the existence of such a marine channel during the late Bronze Age (c. 1200 BC), then Paliki would at that time have been a separate island with a location corresponding precisely to Homer's description of ancient Ithaca in the *Odyssey*.



**Fig. 4. NASA World Wind 3D close-up of the northern end of the Thinia isthmus of Kefallinia.** The land on the right of the image (west) is called Paliki; the isthmus (centre) is called Thinia; the land to the left (east) is the rest of Kefallinia.

Although there are some hills and low mountains at the north of Paliki (foreground) its southern landscape is remarkably flat, which also provides support to Homer's description of ancient Ithaca as 'low-lying'. By comparison, today's island of Ithaki is mountainous (Figure 5).



**Fig. 5. NASA World Wind 3D close-up of today's island of Ithaki.** The view is towards the north-east, with the eastern edge of Kefallinia visible bottom left. Almost all the terrain of Ithaki is mountainous, contradicting Homer's description of ancient Ithaca as 'low-lying'.

## **Early Christian era geographer described a sea channel at Thinia**

The Greek geographer Strabo, writing around 1 AD, described the Thinia area of Kefallinia with the words “Where the island is narrowest it forms an isthmus so low-lying that it is often submerged from sea to sea” [*Geography* 10.2.15], providing independent historical support for the proposal.

## **Next steps in the project**

During 2006 a series of geological and geophysical experiments are planned in Thinia in order to establish when the landslips took place and whether the underlying landscape beforehand was a marine channel. If these tests are successful, archaeological fieldwork can then be conducted on Paliki in the knowledge that Homer’s description of Ithaca in the *Odyssey* was not mistaken, as so many experts have believed, but was accurate all along.

## **For further information**

*News about the project and the book:*

<http://www.odysseus-unbound.org/>

*Homer’s description of Ithaca:*

<http://www.perseus.tufts.edu/cgi-bin/ptext?doc=Perseus%3Atext%3A1999.01.0136&loc=9.25>

*Strabo’s description of Kefallinia:*

<http://www.perseus.tufts.edu/cgi-bin/ptext?doc=Perseus%3Atext%3A1999.01.0198&loc=10.2.15>

## **Downloading and using NASA World Wind**

You will need a modern Windows-based PC with a good video card, at least 512 MB of RAM and 250 Mb of hard disk capacity, and a fast Internet link.

Version 1.3.3.1 of the software (or later) can be downloaded from:

<http://worldwind.arc.nasa.gov/>

Once this has been installed, use the following settings to reproduce these images:

1. On the toolbar, select only "Landsat 7 Pseudo (Geocover 2000)"
2. You should now see the “Blue Marble” view of earth. If not, turn on View - Layer Manager and then select Images - The Blue Marble and also Images - NASA Landsat Imagery - Geocover 2000. Deselect all other options.
3. Move the mouse while holding down your left or right buttons. If you have a central mouse wheel, use it to zoom, else press HOME or END.
4. If you lose orientation, double-click the SPACE bar.

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