

## ***Arena Sundial***

A 3.6 metre-high cast concrete and bronze sculpture by Joanna Migdal and Edwin Russell

1999

At The Arena, Downshire Way



**The *Arena Sundial* looks like a sculpture, but is it actually a sundial, or just called that?**

Although the first image of a sundial that comes to mind is probably a flat disk with a triangular form jutting out of it, the *Arena Sundial* is another widely known type of sundial called a 'Bowstring'.

**What is a sundial?**

Sundials have been used to tell the time since at least 3500 BC in Egypt and Babylon.

They make use of the way that, as the earth orbits the sun, shadows that are cast from static objects move 15° per hour, in a circular fashion.

**Is it really that simple?**

No. Adjustments have to be made that allow for:  
-- the angle of the axis at which the earth spins;

- the distance from the Greenwich Meridian, which determines Greenwich Mean Time (GMT) and time zones throughout the world
- any local adjustments, such as the clocks being changed to British Summer Time (BST)
- a phenomenon expressed by the Equation of Time, which accounts for distortions caused by the earth's orbit of the sun being elliptical rather than circular (which is why we have summers and winters), and by differences in alignment between the sun and the earth.

A very good discussion of sundials can be found at [www.sundialsoc.org.uk](http://www.sundialsoc.org.uk)

### Why are we describing these complications?

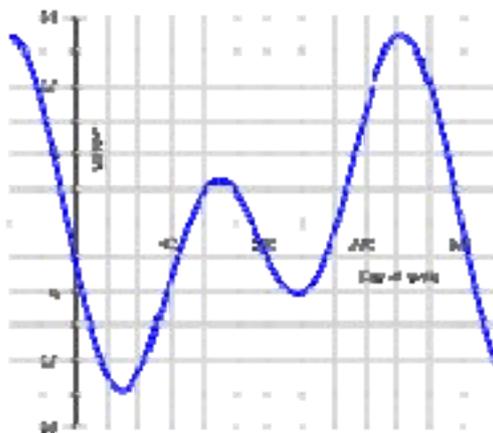
At first glance *Arena Sundial* comes across as a dramatic piece of sculpture, but when you look more closely it's a fully functional object, too. As such it deals with all the science of sundials very precisely, fitting well with the spirit of all the technological industries that have surrounded this sculpture since it was commissioned.

The 'string' of the 'bowstring' design of the sundial is parallel to the earth's axis.

Inscribed on the sculpture is the information that its location is at a latitude of  $51^{\circ}25'$  north and a longitude of  $0^{\circ}43'$  west -- and the hour markings on it also account for this.

One set of markings on one side of the sculpture refer to GMT; another set on the other side refer to BST.

Also inscribed on it is a graph similar to the one below, which gives the Equation of Time: above the axis the shadow on the sundial will appear fast and below the sundial will appear slow.



### Information about the artists

Joanna Migdal has for the past twenty-five years devised and made sundials, clocks and other sculptural pieces for public institutions and private individuals. She was British Sundial Society Award Scheme winner in 2000.

Edwin Russell has created sundials and sculptures for locations including cathedrals and shopping centres across Britain -- notably opposite the new parliament building in Edinburgh, and inside St Paul's Cathedral and Westminster Abbey in London.