

News Archive Space 2009

Berlin, a journey through time: animated aerial and satellite pictures on the anniversary of the Basic Law

20 May 2009

Intro Berlin, a journey through time

The 60th anniversary of the entry into force of the Basic Law of the Federal Republic of Germany, Basic Law for short, was celebrated on 23 May 2009. The history of Germany after the Second World War is inseparably intertwined with the history of Berlin. The development of the two German states could be seen here in microcosm and is also reflected in the architecture, buildings, roads and open spaces – and particularly with regard to the Berlin Wall. The historical progression of these buildings has now been depicted by scientists at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) in animations composed of aerial and satellite pictures of Berlin from 1928 to the present day. The destruction caused by war, reconstruction, GDR buildings, unification and Berlin today can be clearly seen.

Aerial photographs and satellite data from almost 100 years of remote sensing have enabled researchers to process extremely long periods of time with scientific visualisation tools. In this way, changes occurring over decades can be clearly and comprehensively shown. Berlin and many locations within the city possess a symbolic power, which can be highlighted using computer animation and the depiction of change.

DLR scientists create time series animations from aerial photographs and satellite data

DLR can draw on data from 1928 to 2006. Using such data, the German capital can be shown at the end of the 'golden twenties', but the destruction as a consequence of the Second World War, subsequent reconstruction, and, later, the division of the city can be shown too. The construction and former course of the Berlin Wall can also be documented, along with the separate development of the two parts of the divided city. Current aerial photographs and satellite data in turn document the huge amount of building work following reunification, which highlights the new importance of Berlin as the capital of Germany.



Potsdam Square (4:00 min.)



Course of the wall (1:36 min.)



Reichstag and Brandenburg Gate (7:04 min.)



Staff at the GeoVisualisationCentre (GeoVis) in the DLR German Remote Sensing Data Center (Deutsches Fernerkundungsdatenzentrum; DFD) in Oberpfaffenhofen inspected the data, prepared them and then turned them into time series animations. Digital image processing, animation and multi-media techniques make it possible to use such remote sensing data in order to represent the changes as a progression over time. About 100 gigabytes of remote sensing data was used in this task. Aerial photographs were provided by the Berlin State Aerial Photograph Archive. Approximately 66 000 aerial photos are currently archived there.

The data set was supplemented by Allied aerial photographs from the war, which were provided in digital form by the Hans-Georg Carls Engineering Office and the Würzburg Aerial Photograph Database for use by DLR. Data from 2000 onwards come from the Ikonos satellite, from the stock of European Space Imaging (EUSI) in Munich, the HRSC (High Resolution Stereo Camera) of the DLR Institute of Planetary Research in Berlin as well as orthophotos from Aerowest. The database is supplemented by satellite images from the MODIS and Landsat sensors. Information from the State Statistical Office as well as various historical maps were used to provide background information for the geocoding and, above all, for the description and the selection of the points of interest.

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