

Use of Earth Observation in support of Major Sport Events: The post games assessment of the sporting events of the Olympic Games 2004 and 2008.

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Major sport events may result in the modification of the urban environment, or may be used as a tool for urban planning and/or urban regeneration projects. To this end, the main objective of the DRAGON2 Project 5295 was to support the needs of major sport events with the use of EO as well as to use EO for defining urban plans applied in the course of the preparation of cities to host major sport events. In this framework, the project focused on the pre and the post games assessment of the sporting events of the Olympic Games (OG) 2004 and 2008. More specifically, the research that was conducted in the whole project's lifecycle was mainly to examine how the above sporting events affected the urban fabric and the urban environmental quality in both Athens and Beijing. A wide number of thematic areas such as land use and cover, urban microclimate, urban green, air quality and urban surface fluxes were examined and specific indicators for each thematic area were evaluated. Special emphasis was given on the description of thermal comfort, as well as on the changes in the quality of life in the host cities prior and following to the organization of the sporting events. Furthermore, an assessment of the Olympic projects was attempted on the basis of their categorization to projects enhancing the built heritage, projects based on innovative design of space, projects improving the thermal environment, projects improving the quality of air, projects improving quality of life and non-competitive projects in terms of landscape transformations. A synopsis of the research results of the period 2008 – 2011 is given in this study. The post games assessment of the OG 2004 was based on: a) the impact on urban fabric through land use change analysis from 1988 to 2007, providing a complete view of the modifications of the city, as well as of the signature of OG2004 to these modifications; b) the urban regeneration on the basis of selected development scenarios; c) the changes in air quality in terms of particulate matter and its links to the mortality rate in Athens; d) the simulation of the contribution of urban greening to the microclimate of an area which during the OG 2004 hosted a number of sporting facilities; and e) the development of a technique to downscale low resolution satellite images to depict the Urban Heat Island intensity. The post games assessment of the OG 2008 was mainly based on the changes in air quality since EO analysis revealed a severe pollution suffered in Beijing, however the pollution patterns were found modified after the OG 2008, therefore emphasis was given to the analysis of the contributions of various parameters to urban particulate matter. Finally, the research results of the last DRAGON2 period (2011 - 2012) are presented in this study, reflecting the potential of EO for supporting the OG 2012.

Dragon project id

对地观测对大型体育赛事的支持： 以2004年和2008年奥林匹克运动会为例

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大型体育赛事可能会对城市环境造成改变，或可以作为一种工具用于城市规划或城市再生项目。为此，该项目（龙计划二期5295）的主要目的是利用对地观测系统大型体育赛事的举办，以及应用对地观测技术为要举办大型体育事件的城市，制定相应的城市规划工作服务。在此框架内，该项目侧重于对过去和现在（2004年和2008年）的奥运会的体育赛事后的评估。更具体地说，我们要研究在整个奥运会期间，上述体育赛事是如何对雅典和北京的城市肌理和城市环境质量产生影响的。大量相关领域，如土地利用与覆盖，城市气候，城市绿化，空气质量和城市地表通量进行了检查，对每个专题领域的具体指标进行了评价。特别是对热舒适性专题的研究，以及主办城市在组织体育赛事之前和之后的生活质量变化。此外，项目试图在奥运项目的评估中，在分类的基础上，加强文物建筑的保护，工程项目基于创新的空间设计，项目改善热环境，改善空气质量，在景观转换中改进生活和非竞争项目的质量。本文展现了2008 - 2011年间该项研究的成果。对2004年雅典的奥运会评估是在以下基础上进行的：1.通过土地利用变化分析对1988年至2007年间雅典城市结构的影响进行分析，对城市的改变提供了一个完整的视图，以及作为这些改变的标志；2. 在选定的发展模式基础上的城市再生；3. 在可吸入颗粒物与死亡率的关系角度考虑空气质量的变化；4. 模拟2004年雅典奥运会一些体育设施周边的城市绿地对局地小气候的影响；5. 发展转换低分辨率卫星图像，描绘了城市热岛强度的技术。对2008年北京奥运会的影响评价主要是基于空气质量的变化，因为对地观测分析显示，北京受到了严重污染，但在2008年北京奥运会后污染的模式被发现并进行了改进，因此重点是要分析对城市可吸入颗粒物其贡献作用的各种参数。最后，在2011-2012年间的龙计划二期项目的研究成果在本文中呈现，反映了对地观测技术在2012年伦敦奥运会中的潜在应用能力。