

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Data Systems and Technology (4)

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POLYTOPE: FEATURE EXTRACTION FOR IMPROVED ACCESS TO PETABYTE-SCALE EARTH
OBSERVATION DATACUBES**Abstract**

Earth Observation (EO) has been one of the main drivers of the aerospace sector for over 60 years. With recent increases in satellite instrument precisions and EO satellite launches, the data produced by this field has grown exponentially in the past few years. To continue using EO data in downstream applications, it is thus essential to find new methods of representing and accessing this data, which are both efficient and intuitive. In recent years, EO data has often been represented as datacubes, with initiatives such as the Earth System Data Cube or Open Data Cube paving the way towards a unified access to different EO data streams. Indeed, by combining different observation data types into single datacubes, EO data access has become easier for users, who can now find most of the data they need for their scientific applications in one place. As these EO datacubes grow in size, there is no clear-cut way of accessing them efficiently. In this paper, we describe an algorithm (Polytope), which retrieves any arbitrary, user-defined shapes (or “features”) that the user is interested in, returning solely the data within these query shapes. We show the benefits of using the Polytope algorithm as opposed to traditional data extraction methods that rely on axis-aligned coverages through specific Earth Observation examples that might be of interest to the community.