

IGARSS 2000 ABSTRACT SUBMISSION TEMPLATE

CORRESPONDING AUTHOR: _Ronald G. Blom____

AFFILIATION: Jet Propulsion Laboratory_____

ADDRESS: _M/S 300-233

4800 Oak Grove Drive

CITY: _Pasadena____

STATE: CA

POSTAL CODE: 91109

COUNTRY: __USA__

TELEPHONE: 818-354-4681

FACSIMILE: _818-354-9476

EMAIL: ronald.blom@jpl.nasa.gov

ABSTRACT TITLE:

Applications of Space Technology to Investigations of the Frankincense Trade in Southern Arabia

AUTHOR(S):

List names only...if subsequent authors have different mailing addresses, please use a second sheet to provide data

Ronald Blom and Robert Crippen

ABSTRACT TEXT:

Text block boundaries are fixed. Abstract cannot exceed boundaries.

Roman historian Pliny refers to eight fortresses along the incense route. Ubar, the easternmost fortress, was located by an unusual combination of historical research, traditional archaeology, and remote sensing. Two expeditions to Yemen, aided by remote sensing data, have revealed additional sites related to frankincense trade, some of which may be remains of Pliny's fortresses. To help locate sites and areas of archaeological and botanical interest, Landsat Thematic Mapper image data were acquired, enhanced, and studied, enabling us to target field investigations. The images also reveal areas of various rock coatings, including lithobiontic and rock varnish, induced by the Southwest monsoon. These coatings may preserve a record of past extent of the monsoon, indicating environments suitable for frankincense. The present known extent of frankincense is inadequate to support the volume of incense arriving in Rome 2000 years ago. Also, ancient anthrosols, or agricultural soils, have a distinct Landsat image signature due to the presence of gypsum. One issue with desert trade is the source of food to supply the caravans. We may have located an ancient agricultural area on Landsat images near the Ubar site.