

## 共同研究課題

# 超高層大気イメージングシステムデータベースのアーカイブ

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## 1. 研究目的

「超高層大気イメージングシステム(Optical Mesosphere Thermosphere Imagers - OMTIs)」は、平成8年度に導入され、高感度全天カメラ、掃天フォトメータ、ファブリ・ペロー分光計、及び分光温度計から構成されている。この機器群で高度90-300kmの夜間大気光を観測することにより、大気の密度変化の2次元分布、風速、温度を同時に複数高度で計測することができる。本データベースでは、これらの観測から得られる超高層大気変動のデータをデータベース化して公開することにより、大気重力波や熱圏波動の研究を全国の研究者と協力して推進する。

## 2. データベース作成の概要

太陽地球環境研究所では、超高層大気イメージングシステムを用いて総合的な大気観測を行い、中間圏、熱圏、電離圏の大気力学過程の解明に大きく貢献してきた。平成22年8月現在で、北海道陸別観測所、滋賀県信楽町（京都大学信楽MU観測所）、鹿児島県佐多岬、コトタバン（インドネシア）、チュンマイ（タイ）、レズリュートベイ、アサバスカ（カナダ）、パラツンカ、マガダン（ロシア）、トロムソ（ノルウェー）で、これらの機器による無人自動観測を定常的に行っている。これらの観測点からカメラ13台、フォトメータ3台、ファブリ・ペロー干渉計4台、分光温度計4台、のデータが定常的に得られる。これらの機器から毎日得られるデータから、クイックルックのためのサマリープロットを作成し、ホームページで公開していく。デジタルデータは、リクエストに応じて公開していく。これらのデータアーカイブ作業のために、アルバイト職員を1名、雇用している。これらの観測・共同研究は、ジオスペース研究センターの第1期及び第2期のプロジェクト2の一環として行われている。自動観測で得られるデータをデータベース化し、そのクイックルックプロットを逐次作成・整理しておくことによって、初めて処理に時間のかかる画像データを簡単に扱えるようになる。このデータベース化は非常に重要で、これにより、自動観測の不具合の早期発見だけでなく、大量の画像データを用いた統計的な解析や、人工衛星データとの比較、低緯度オーロラ・大規模TID・プラズマバブル構造などの特異な現象の発見、などの研究が可能になる。

### 3. 共同研究の成果、公表状況

中間圏大気重力波、電離圏の中規模・大規模伝搬性電離圏擾乱、低緯度オーロラ、極冠域パッチ現象、赤道域プラズマバブル、などの研究にこのデータベースは広く利用されている。2001年以降の研究論文のリストを以下に示す。

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#### 4. ホームページのアドレス

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