中继无人机系统

Data Relay Unmanned Aerial System (UAS)

无人机遥感技术因其灵活机动、成本低、安全高效等优势在地质调查领域有广泛的应用。但是在高山区，无人机飞行平台和地面站之间的通信链路常因山体遮挡而中断，严重影响到无人机的飞行安全及监测数据的实时传输。在地质调查项目的支持下，中国国土资源航空物探遥感中心研制了一套中继无人机系统。该系统包括无人机飞行平台和集数传、图传中继为一体的中继设备。作业时，中继无人机在地面站上空盘旋飞行，远端监测无人机通过与中继无人机之间的数据链路，实现与地面站之间的实时数据和实时视频传输，提高了无人机遥感监测的安全性和有效性。此外，中国国土资源航空物探遥感中心研制了一辆静中通车载综合系统，可通过卫星通信链路，将无人机系统获取的数据实时回传至北京指挥中心。

Unmanned Aerial Vehicle (UAV) Remote Sensing has been used widely in geology survey field because of its excellent characteristics such as flexibility, the much lower costs and the safety. However, the data link between the aerial platforms and ground stations is always interrupted by the mountains in the mountainous area, which makes the flight more dangerous and the real-time data transmission impossible. Supported by China Geological Survey project, a Data Relay Unmanned Aerial System is developed by China Aero Geophysical Survey and Remote Sensing Center for Land and Resources (AGRS). The system consists of a UAV platform and a data relay device which integrates data transmission device and picture transmission device. During the UAV remote sensing survey, the data relay UAS will take off first and hover above the ground station, then another UAS equipped with remote sensing payload (remote sensing UAS)will build a data link with the data relay UAS and fly to the work area. By the relay data link, the data produced by the remote sensing UAS will propagate to the ground station without interruption. In addition, AGRS develops a satellite communication vehicle. After the ground station is connected to the satellite communication vehicle, the data produced by the remote sensing UAS can be propagated to the Beijing command center in real time.

中继无人机系统性能参数：

尺寸：机长 1.8 m，翼展 3 m
最大飞行高度：海拔 5000 m
测控半径：30 km
巡航速度：80 km/h
续航时间：2 h
最大起飞重量：15 kg
载荷重量：2 kg
动力方式：双发电动
起飞方式：车载 / 滑起
降落方式：滑降 / 伞降

Data Relay UAS Specifications:

Dimension: Length 1.8m, Wingspan 3 m
Ceiling: 5000 m
Max Range: 30 km
Cruising Speed: 80km/h
Flight Endurance: 2 hour
Max Takeoff Weight: 15 kg
Payload: 2 kg
Propulsion type: Electric
Takeoff method: Car-top or runway
Landing method: Parachute or runway

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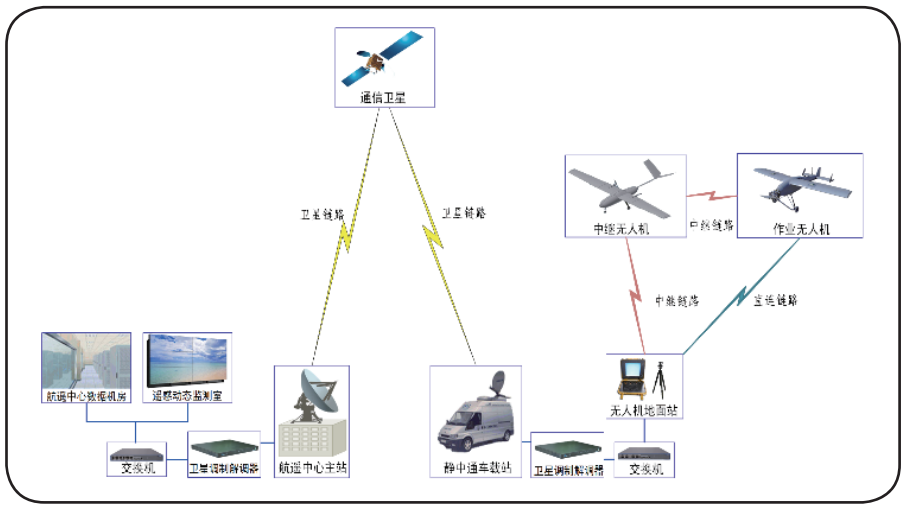
Data Relay UAS



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Topological diagram of the satellite communication vehicle