UFO-CS Aeromagnetic measuring system

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UFO-Cs airborne cesium optical pump Magnetic measurement system

UFO-CS airborne cesium optical pump magnetic measurement system is mainly used in unmanned platforms in low altitude, ocean, land and other environments. It can be used in different unmanned platforms according to the actual usage scenarios of customers. It has the features of easy to use, high commercialization and flexible integration.

The unmanned flight platform used in the system has a high-precision RTK control flight positioning module, with ground-like flight function and perfect after-sales service and commercial insurance. One-stop service makes it easy for you to fly, and fly with confidence.

After commercialization in 2017, the exploratory flyer mile of UFO series has reached up to 50,000 kilometers, including Qinghai, Sichuan, Yunnan, Shandong, Hunan, Hubei, Anhui, Jilin, Inner Mongolia, Xinjiang UygurAutonomous region, Zhejiang, Kenya, and Antarctica.

Features

- High precision, high efficiency, high safety.
- A powerful complement to the surface magnetic survey work.
- Take-off and landing is convenient and easy to operate.
- The connection between the aircraft and the magnetic measurement system is rigid.
- One Stop services, simple and trusted.

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UFO-8B: Specifications of Large eight rotor aircraft – equipped with UFO-CS optical pump Magnetic measurement system

Aircraft Size： 661 mm*661 mm*1055 mm
Wheelbase Diameter： 1800 mm
Paddle Blade: 3010 carbon fiber propeller
Empty weight: 14kg
Maximum Load： 20 kg
Maximum Takeoff Weight：54 kg Communication Range：
5-10 km Cruising Speed： 10 m/s
Maximum Rising Speed： 5 m/s
Takeoff and Landing Mode： Fully automatic operation
Longest Flight Time： 50min
Flight time with a load of 10 kg: 20-30min
Altitude Limit： less than 3500 m Wind Resistance： Level 6
Hovering accuracy: vertical: 3cm; horizontal: ± 1cm + 1ppm
Safely Control： One touch return. Low battery alarm. Once out of control returning back automatically. Black box data recording. Allowing random single propeller damage and double propeller non adjacent damage.
Autonomous Control： Autonomous takeoff/landing. Aviating automatically according to the path.

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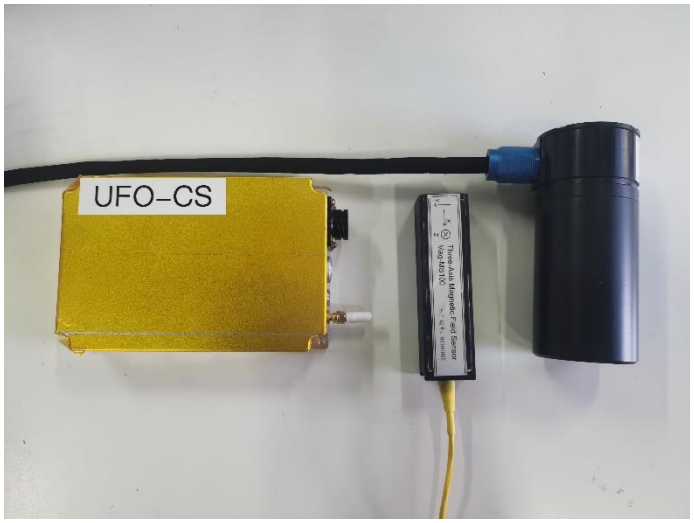
UFO-V20+: Specifications of Fixed wing vertical takeoff and landing aircraft - equipped with UFO-CS optical pump Magnetic measurement system

Aircraft Type ： Vertical takeoff and landing fixed wing
fuselage lenth ： 1660 mm
Wing Span ： 3.2m
Maximum Load ： <5 kg
Empty weight: 8.05kg
Takeoff Weight：<19.2kg
Power system: 6S, 22.8v, 25000mah * 2
Radio communication range: 30km
Endurance time: 180 minutes @ 1 kg load
90-120 min @ 4 kg load
Optimal Cruising Speed：20m/s（72km/h）
Maximum Cruising Speed: 30m/s（108km/h）
Wind Resistance：Level 6
Actual rise limit: 6000m
Flight capability: simulated ground flight
DGPS：RTK/PPK
Vertical positioning accuracy: 3cm
Horizontal positioning accuracy: 1cm + 1ppm
Take off site: land or shipborne (shipborne take-off and landing module is required)

UFO-CS: Specifications of Cs optical pump Magnetic measurement system



1.Data Acquisition System
Sampling Rate ： ≤100Hz (selectable to user)
System White Noise：0.3pT
2.Fluxgate Probe Index Weight ： probe 130g
Measuring Range ： ±100 uT
Common Noise ： ≤6-8pTrms/√Hz
3.System Index
Measuring Range ： 15000 nT～105000nT
Dynamic Noise Level ： ≤ 0.01nT
Line Repeatability ： ≤1nT
Cross Point Repeatability ： ≤0.8nT
Gradient tolerance: 40,000 nT/m.
Minimum resolving power (sensitivity): 0.6 pTrms/√Hz.
Reading resolution: 0.0001nT
ground static noise: should not exceed 3 pT at a bandwidth of 0.1 Hz to 1 Hz.
Probe orientation difference: ±0.5nT.
Multi-station consistency: less than 0.01nT
synchronization: GPS clock synchronization.
Operating temperature: -20 ℃ ~ 50 ℃
optical pumping magnetometer system complete weight: 1.5Kg (including battery)

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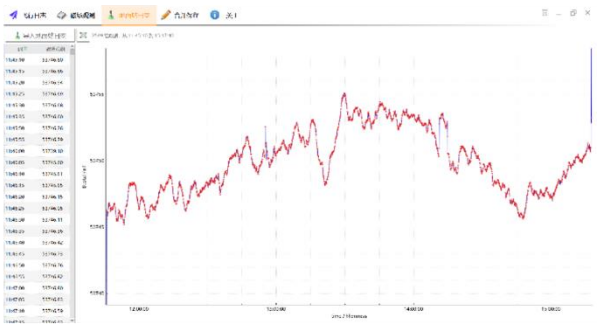
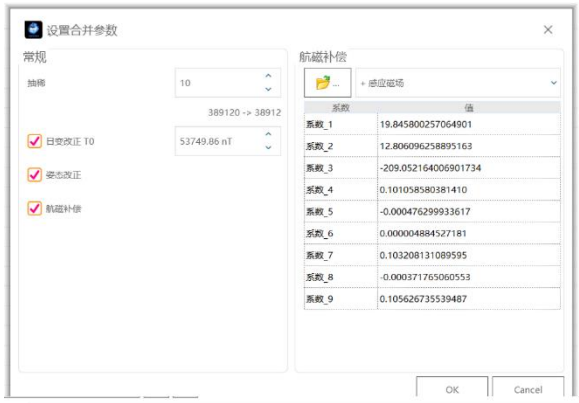
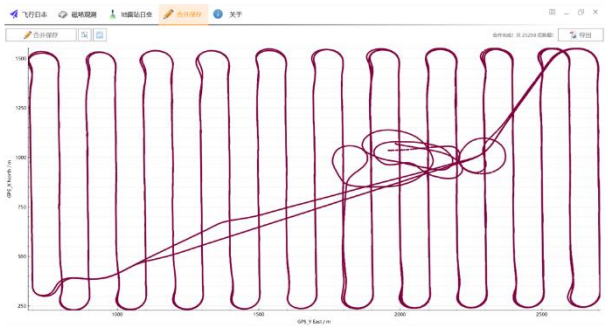
Archon: Aeromagnetic data preprocessing software

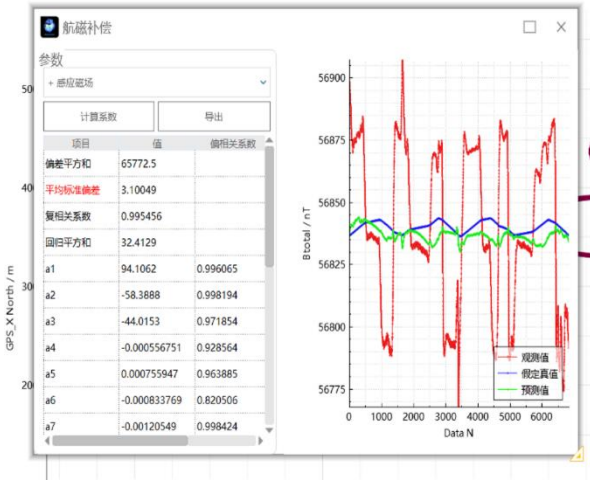
Owned with following features: Format conversion, Combination between magnetic data with navigation data, Data filtering, Posture correction, diurnal variation correction, Data thinning, data deletion, and dividing measurement lines etc.

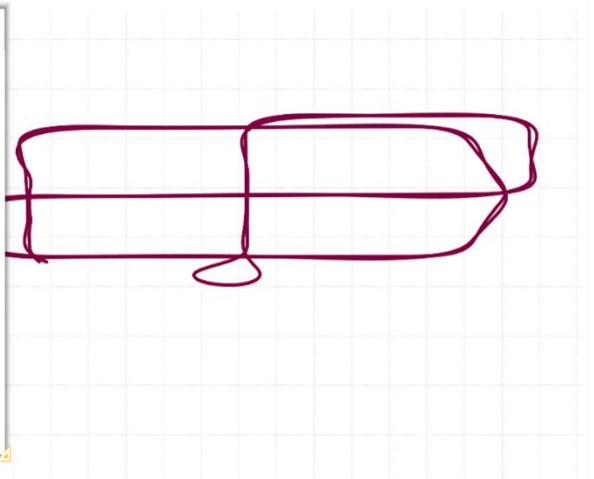
Archon software is a pre-processing software for UFO-CS low altitude aerial magnetic system written by Beijing Orangelamp Geophysics











EREV-CS Cs optical pump station for measuring diurnal variation

Technical specifications.
Absolute accuracy: generally less than 0.05nT
Static noise value: 1Hz to 2Hz bandwidth peak-to-peak value less than 0.003nT
Reading resolution: 0.001nT
Reading sensitivity: 0.003nT
Measurement range: 10,000nT-100,000nT
Gradient capacity: 40,000nT/m
Sampling rate: 1-60Hz or user selectable
Sampling mode: continuous acquisition, gradient continuous acquisition
GPS: built-in GPS, positioning accuracy of 2.5 meters, timing accuracy of 10-9 seconds
Wireless communication: 900MHz, 6.4km in the case of through-vision
Storage media: built-in 16GB SD card, 32GB or 64GB large-capacity memory are optional
Data transmission: USB data line
Battery indicator: built-in 12V, 114Ah non-magnetic lithium battery; support external battery mode
Operating temperature: -40 degrees Celsius -----70 degrees Celsius
Weight: probe: 0.8Kg; host: about 12Kg (including battery)
dimension: host: 470mm x 357mm x 176mm； Probe: 63.5mm diameter x 160mm
Data extraction software: self-contained
Data pre-processing software: OGM-LINK
Erev OGM-link Data pre-processing software: the functions include diurnal variation processing, moving sliding average filter processing, bad point deletion, averaging the same measurement points, instrument noise calculation, drawing profile map function, track back, support GPS format conversion.

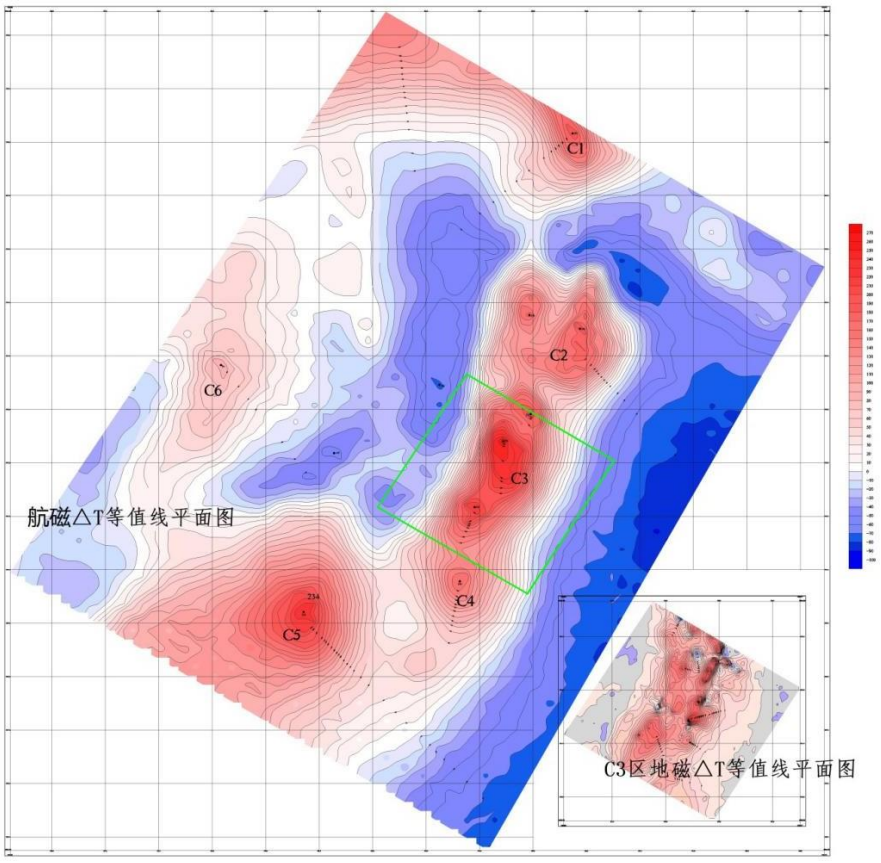
Case Studying

Case1

The aeromagnetic equipment UFO-CS was used in a design of mineral prospective project ,scale 1:10,000 ,aeromagnetic survey area is about 128km2, 7 flights completed the survey line , total miles of which is 1516km, the average flight height is 141.2 meters, and the measured network density is 100m±13m. The average flight speed is 107.3km/h, the sampling frequency is 20Hz, and the point distance is 1.49 meters. In order to compare the result of ground magnetic survey and aeromagnetic survey, a integrated magnetic anomaly was selected and a 1:10,000 ground magnetic survey was performed.

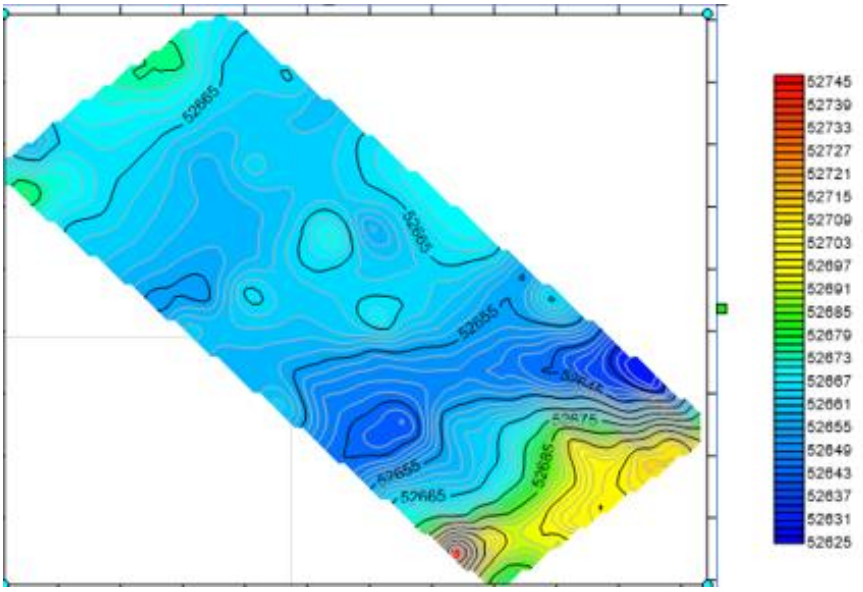
After correcting and processing the aeromagnetic data, the "△T contour map " was drawn (see the figure below, the green frame is 1:10,000 ground magnetic measurement range). According to the characteristics of aeromagnetic anomalies, six aeromagnetic anomalies are defined, which are respectively C1-C6. The anomalous contrasts of this time are more complete than the 1:50,000 magnetic aeromagnetic anomalies, the details

are more detailed, and the local large anomalies are decomposed into multiple peak anomalies, the anomaly internal features are more clearly reflecte



Case 2

Using UFO-CS, an aeromagnetic survey project was conducted in Laizhou, Shandong Province in 2019. The results achieved were as follows: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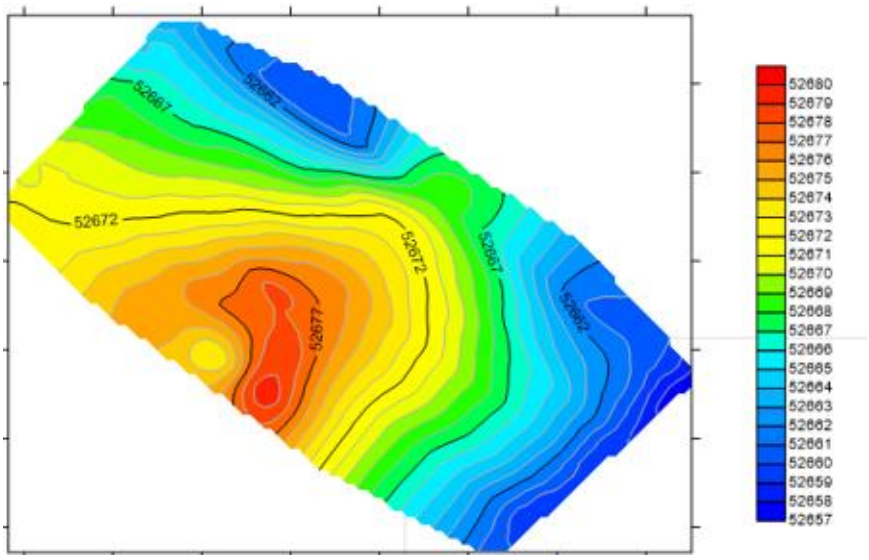
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