

China's first fully solar-powered unmanned aerial vehicle

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In news—China's first fully solar-powered unmanned aerial vehicle has successfully completed its maiden test flight with all onboard systems functioning optimally.

About the unmanned aerial vehicle(HALE)-

- With a **wingspan of 164-ft**, the drone is a large machine **powered entirely by solar panels**.
- The high-altitude, long-endurance (HALE) UAV can stay airborne for long durations.
- **Named the Qimingxing-50, or Morning Star-50**, this drone **flies above 20-km altitude** where there is stable airflow with no clouds.
- This helps **these drones to make the maximum use of solar equipment** to stay functional for extended durations.
- It is believed by chinese scientists that it can operate without a break for months, even years.
- The fact that the **drone can operate in near-space, 20 km to 100 km** above the Earth's surface makes it capable of carrying out satellite-like functions.
- If satellite services are not available for, say, time-sensitive operations or in case of wartime disruption, then near-space UAVs can step in to fill the operational gap.
- **These drones are also referred to as 'High Altitude Platform Stations' or pseudo-satellites**.
- China already has this capacity, but the Qimingxing-50's long-endurance provides an added advantage to make this capability available over a longer period.
- This HALE UAV is capable of conducting high-altitude

reconnaissance, apart from monitoring forest fires, providing communication and environment relay.

- **Drones like the Morning Star-50** are cost-effective to build and are also easy to launch and operate.

Note:

- In July 2022, the **US Army helped test a solar-powered, near-space Airbus Zephyr S drone** that set a new record by being airborne for 42 days.
- The **Airbus Zephyr** is a series of lightweight solar-powered unmanned aerial vehicles (UAV). It has a wingspan of 25 metres and weighs 75 kilograms.