

《地球的秘密电场：NASA火箭揭开大气之谜，地球竟被隐形层包裹》

我们的蓝色地球一直以来都充满了神秘，人类对地球的探索也从未停止。最近，NASA又揭开了一个令人惊叹的谜团——地球隐藏已久的“隐形力量”地球电场。下面一起来看相关双语报道。



The American space agency NASA says it has confirmed the long-suspected existence of an electric field that surrounds Earth.

美国航天局NASA表示，它已经证实了长期以来怀疑的地球周围存在电场。

A rocket named Endurance gathered the information that led to the confirmation.

一枚名为“耐力号”的火箭收集了导致确认的信息。

Endurance launched from Norway on May 11, 2022.

“耐力号”于2022年5月11日在挪威发射。

The launch site was the closest possible to the North Pole.

发射场是距离北极最近的。

Endurance reached a top altitude of 768 kilometers.

“耐力号”达到768公里的最高海拔。

The rocket captured data on the electric field during its 19-minute flight before splashing down in the sea, off the coast of Greenland.

火箭在19分钟的飞行中捕获了电场数据，然后坠入格陵兰岛海岸附近的大海。

NASA says that since the 1960s, spacecraft flying over Earth's poles have recorded collections of particles flowing from the planet's atmosphere into space.

NASA表示，自20世纪60年代以来，飞越地球两极的航天器记录了从地球大气层流入太空的粒子集合。

But the cause of these outflows long remained a mystery.

但这些资金外流的原因长期以来仍然是一个谜。

Scientists lacked the technology and tools to confirm an electric field and further explore it.

科学家缺乏确认电场并进一步探索它的技术和工具。

But the development in recent years of new observation methods and instruments led NASA to plan the Endurance mission.

但近年来新观测方法和仪器的发展促使NASA计划了“耐力号”任务。

So the agency built the rocket and a new data instrument and planned the launch.

因此，该机构建造了火箭和一台新的数据仪器，并计划了发射。

NASA scientist Glyn Collinson, an expert in space instrument design, led the Endurance mission.

NASA科学家格林·科林森是太空仪器设计专家，领导了“耐力号”任务。

Collinson explains in a video that scientists believe the electric field they searched for was one of three energy fields affecting Earth.

科林森在视频中解释说，科学家相信他们寻找的电场是影响地球的三个能量场之一。

The others are gravitational and magnetic.

其他的是引力和磁力。

Scientists are calling the third energy field the "ambipolar electric field."

科学家称第三种能量场为“双极电场”。

A NASA statement says scientists believe the ambipolar field is an influential driver of the "polar wind."

NASA的一份声明说，科学家们认为，两极磁场是“极地风”的一个有影响力的驱动因素。

They described the wind as "a steady outflow of charged particles into space that occurs above Earth's poles."

他们将这种风描述为“发生在地球两极上空的带电粒子向太空的稳定流出”。

Scientists believe the ambipolar electric field counteracts some of the effects of gravity.

科学家认为，双极电场抵消了重力的一些影响。

This electric field lifts the charged particles in Earth's upper atmosphere "to greater heights than they would otherwise reach," NASA said.

NASA表示，这种电场将地球高层大气中的带电粒子提升到“比它们原本能达到的更高的高度”。

Scientists had theorized this electric field began at around 250 kilometers high.

科学家们推测，这个电场始于大约250公里高的地方。

This is where atoms in our atmosphere break apart into negatively charged electrons and positively charged ions.

这就是大气中的原子分裂成带负电的电子和带正电的离子的地方。

This activity helps form a part of Earth's atmosphere known as the ionosphere.

这种活动有助于形成地球大气层的一部分，即电离层。

NASA noted the Endurance mission permitted researchers to successfully identify and measure "a planet-wide electric field thought to be as fundamental to Earth as its gravity and magnetic fields."

NASA指出，“耐力号”任务使研究人员能够成功地识别和测量“一个被认为与地球的重力和磁场一样重要的行星范围内的电场”。

A study describing the team's results recently appeared in the publication Nature.

一项描述该团队结果的研究最近发表在《自然》杂志上。

NASA said studying the ambipolar electric field is important because it "may have shaped our planet's evolution in ways yet to be explored."

NASA表示，研究双极电场很重要，因为它“可能以尚未探索的方式影响了我们星球的进化”。

In addition, the agency said further study of this field can help scientists better understand other planets and possibly find ones with conditions that may support life.

此外，该机构表示，对该领域的进一步研究可以帮助科学家更好地了解其他行星，并可能找到具有可能支持生命条件的行星。

Leader Collinson said that, during the mission, the instrument on the rocket was able to measure an electrical voltage of 0.55 volts.

科林森队长表示，在任务期间，火箭上的仪器能够测量到0.55伏的电压。

He said this level is very low, about the same voltage used to power a watch battery.

他说这个水平非常低，大约与手表电池供电的电压相同。

But, he noted that 0.55 volts was "just the right amount" to explain the outflows of particles driving the polar wind.

但是，他指出，0.55伏特的电压“刚刚好”，可以解释驱动极地风的粒子流出。

Collinson said he finds the results "incredibly important"

科林森表示，他发现结果“极其重要”，

because the newly confirmed electric field can counter the effects of gravity and "basically lifts the skies up."

因为新证实的电场可以抵消重力的影响，“基本上可以把天空抬起来”。

He described the field as a kind of "conveyor belt that's lifting this atmosphere up into space."

他将这个领域描述为一种“将大气层提升到太空的传送带”。

Alex Glocer is a project scientist for the Endurance mission and was a co-writer of the study.

亚历克斯·格洛瑟是“耐力号”任务的项目科学家，也是该研究的合著者。

He said he agrees with those findings.

他说他同意这些发现。

"That's more than enough to counter gravity – in fact, it's enough to launch them upwards into space at supersonic speeds," Glocer said.

格洛瑟说：“这足以对抗重力——事实上，足以将它们以超音速发射到太空。”

Supersonic describes speeds that are greater than the speed of sound.

超音速描述了大于音速的速度。

The team said the study results suggest the ambipolar electric field also greatly increases the density of the ionosphere at higher atmospheric positions.

该团队表示，研究结果表明，双极电场也大大增加了大气较高位置的电离层密度。

Collinson said, "Any planet with an atmosphere should have an ambipolar field.

科林森说：“任何有大气层的行星都应该有一个双极场。

Now that we've finally measured it, we can begin learning how it's shaped our planet as well as others over time."

现在我们终于测量了它，我们可以开始了解它是如何随着时间的推移塑造我们的星球以及其他星球的。”

I'm Bryan Lynn.

布莱恩·林恩为您播报。

重点词汇

The American 美国人；一个美国人；美国刺客

space agency 航天局；宇航局；太空总署；美国太空总署

NASA 国家航空和航天局

electric field 电场

surrounds 包围，围住；围绕；环绕；与...紧密相关；边，饰边；周围；
surround的第三人称单数和复数

Endurance 耐力；忍耐力；耐久力

gathered 聚集；集合；召集；收拢，归拢；搜集，收集；gather的过去分词和过去式

launch site 发射场；发射地点，发射场

closest 接近；靠近；紧挨着；不远地；亲密的；密切的；可能；几乎；close的最高级

North Pole 北极；北极；负极