

1 **Astonishing Drone Uses**

2 By **Brian Handwerk**

3
4 We all know drones can **deliver** death on the battlefield, government agencies, some public universities, and a handful
5 of private companies hold several hundred FAA **permits** to fly private drones. What are those drones be doing? Here
6 are five civilian **areas** in which they have already **excelled**:
7

8 **1. Hurricane Hunting**

9 Drones can charge into the heart of a storm without risking human life and limb. That's one reason NASA, the National
10 Oceanic and Atmospheric Administration (NOAA), and Northrop Grumman teamed up on a three-year, \$30-million
11 experiment to use **long-range** Unmanned Aerial **Vehicles** (UAV) to spy on storms as they **evolve**.

12 The program's Global Hawk drones can stay aloft for 30 hours and fly 11,000 miles (17,700 kilometers) with their 116-
13 foot (35-meter) wingspans. That lets them reach and stay in stormy areas that **manned** planes can't, **performing**
14 **valuable** surveillance. Scott Braun, director of NASA's Global Hawk mission, used this **analogy** in an interview with
15 National Geographic last year: "If you drove by a drug dealer's house, you wouldn't catch him; but if you stood there all
16 day, you might." Braun and team have tapped unmanned air power to track tropical storm data through a storm's long
17 **evolution**, in hopes of improving prediction powers. "If we can improve **forecasts**," Braun said, "we can save money
18 and lives."

19 A team at the University of Florida, meanwhile, is tackling the same task with a different method, **employing** a swarm
20 of six-inch-long drones that are **launched** with a laptop, use little power, and can be carried by wind water current—
21 even underwater—to ride through a massive storm by the hundreds, **collecting** data. Their **reports** on temperature,
22 pressure, humidity, and location could help scientists understand the forces of wind and water inside hurricanes by
23 going with the flow the way humans never could. "Our vehicles don't fight the hurricane; we use the hurricane to take
24 us places," said the University of Florida's Kamran Mohseni, who invented the little drones.

25 **2. 3-D Mapping**

26 Small, **lightweight** drones may look like simple model airplanes, but they can **survey** landscapes with thousands of
27 digital images that can be stitched together into 3-D maps. Military and other government satellites produce similar
28 maps, but **emerging** UAV technology can put that **capability** in the hands of small companies and individuals, to be
29 **customized** and used for a seemingly endless **variety** of applications.

30 "You can just push a button or launch them by hand to see them fly and you don't need a remote anymore—they are
31 **guided** by GPS and are **inherently** safe," Olivier Küng, co-founder of Switzerland software company Pix4D, said in a
32 May TEDx talk in Lausanne, Switzerland. Pix4D's software creates 3-D maps from drone images. Küng told the TEDx
33 crowd that such technology has already been **widely** applied—for Haitian relief efforts after Hurricane Sandy, by
34 farmers seeking to manage far-flung crops and fields, by mining companies **monitoring** changes to open pit mines, and
35 by festivals to monitor **crowd** size for security reasons, among other uses. Other applications will be developed when
36 drone technology becomes widely **available**, Küng predicted. "The real question," he said in Lausanne, "if you had
37 these flying machines, this powerful software, and these thousands of eyes, what would you do with it?"

38 **5. Search and Rescue**

39 An **injured** victim of an automobile accident in Saskatchewan, Canada, last month may have been the first person to
40 have his life saved by a search-and-rescue drone. When Royal Canadian Mounted Police **responded** to a late-night
41 rollover in a **remote location**, they found that the disoriented driver had wandered off. A ground **search** and an air
42 ambulance helicopter with night-vision **gear** failed to find him. But, after a cell phone call from the injured victim gave
43 a hint to his whereabouts, a Dragan Flyer X4-ES drone with heat-sensing equipment, launched by the Mounties, found
44 the victim before a potentially **fatal** night outdoors in subfreezing temperatures.

45 "That's the first known rescue that an unmanned aircraft has made, that I'm **aware** of," Gielow said. It's not likely to be
46 the last. SAR missions are **time consuming**, expensive, and often dangerous for the people **involved**. The use of **well-**
47 **equipped** drones is increasing for SAR and could soon become a standard way to cover large areas of **inaccessible**
48 terrain, even at night.

49 Adapted from the [National Geographic](#)