

Drone Use Expands in Japan for Faster, Safer Disaster Response

地震や豪雨などの災害が起きたとき、人が立ち入るには危険な場所での救助活動が大きな課題となります。こうした中、熊本地震の被災地では小型ドローンが活用され、災害現場での新たな役割に注目が集まっています。全国で活用が広がる一方、いざというときに十分に使える体制をどう整えるかという課題もあります。あなたは、ドローンなどの新しい技術を災害時にどのように活用していくべきだと思いますか。



(Image courtesy of JUIDA)

1. Article

Read the following article aloud.

Drones are becoming an increasingly important tool in Japan's response to natural disasters. Remotely operated aircraft can quickly assess damage while keeping rescuers out of potentially dangerous areas. Some can also transport supplies or broadcast evacuation warnings.

As their use expands, however, ensuring a stable supply of drones and trained operators remains a challenge.

Their capabilities were put to use in Kumamoto Prefecture after a powerful earthquake struck on July 28.

The following day, the Japan UAS Industrial Development Association (JUIDA), an industry group made up of drone-related companies, began searching Aeon Mall Kumamoto at the request of the Ground Self-Defense Force.

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Source: Drone Use Expands in Japan for Faster, Safer Disaster Response

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1. Article

An explosion occurred at the mall after the initial tremors. Seven people, all employees of businesses operating in the complex, are believed to have initially evacuated but later returned to the building, where they were caught in the explosion.

The government has said the blast was likely caused by a liquefied petroleum (LP) gas leak from distribution pipes damaged by the earthquake.

Palm-sized drones were deployed in areas that Self-Defense Force and fire department personnel could not safely enter because of the risk of secondary disasters. Real-time footage allowed rescuers to identify areas that needed to be searched.

Similar operations were conducted at the Nippon Paper Yatsushiro mill, where a chimney had collapsed. A total of 13 searches were carried out over four days.

Kohei Juni, who led the operations, said the drones allowed rescuers to concentrate manpower on areas where searches were most urgently needed, helping them save lives at an early stage.

The use of drones is not limited to locating people or assessing damage. JUIDA also dispatched teams to areas affected by the 2024 Noto Peninsula earthquake, where drones were used to inspect damage inside buildings and, in cooperation with Disaster Medical Assistance Teams (DMATs), deliver medicines to evacuation centers cut off by road disruptions.

The organization also used drones to monitor landslide dams from fixed points, helping track sites at risk of triggering debris flows.

Police have likewise used drones for search operations and other tasks following major disasters, including the Kumamoto earthquake. Aerial footage can be transmitted instantly to police headquarters away from the disaster site, allowing officers to deploy teams more efficiently and select safer routes to affected areas.

Drones are also increasingly being used by firefighters. According to the Fire and Disaster Management Agency, only 70 of Japan's 732 fire departments had introduced drones as of April 2017. By April last year, however, nearly 80% of fire departments nationwide had deployed them.

Drones equipped with speakers can also deliver information to areas where broadcasts from disaster-prevention administrative radio systems are difficult to hear.

1. Article

A report by an advisory panel to the Fire and Disaster Management Agency, an external body under the Ministry of Internal Affairs and Communications, said drones are already being used in Sendai and Ichinomiya, Chiba Prefecture, to warn people in coastal areas of tsunami threats.

The report said outdoor speakers should remain the basic means of communication, but drones could be effective in coastal and mountainous areas where installing such speakers is difficult.

Despite growing demand, drone use at disaster sites is still largely left to individual local authorities. Sotaro Tsuboi, a professor of applied geography at Teikyo University, said the Disaster Relief Act should explicitly provide for drones to be used to save lives and transport supplies during emergencies.

Local governments also differ in how they secure budgets and cover operating costs. Closing these gaps would help create more reliable arrangements for emergency drone operations.

Regular maintenance and the training and retention of skilled operators are also essential. Tsuboi said disaster management plans should specify drones' roles and procedures for using them, making this an urgent priority.

2. Key phrases and vocabulary

First repeat after your tutor and then read aloud by yourself.

1. **operate** 運営する、操作する

A tablet computer is easy to operate.

2. **assess** 評価する

The teacher will assess the students' writing next week in an in-class essay test.

3. **supply** 供給

The market on the corner always has a good supply of fresh vegetables.

4. **concentrate** 集中する

Sorry, I'd like to go out to lunch, but I need to concentrate on a major project for work today.

5. **specify** 明記する

Please specify the size and color you want when you order your beach sandals.

3. Questions

Read the questions aloud and answer them.

1. How were drones used the day after the 2026 Kumamoto earthquake?
2. How were drones used after the 2024 Noto Peninsula earthquake?
3. What does Sotaro Tsuboi, professor of applied geography at Teikyo University, say needs to be done to create a reliable drone system for disasters?
4. How can drones make disaster response safer and more effective in your community?
5. Do you think local governments should have a common system for using drones during disasters? Why or why not?

4. 自衛隊も入れぬ危険地帯へ…熊本地震で活躍小型ドローン 運用増える一方、操縦者確保課題

7月28日の熊本地震では、爆発があった「イオンモール熊本」（熊本県嘉島町）などでの救助活動にドローン（無人航空機）が用いられた。遠隔操作により二次被害を防ぎつつ迅速な現状把握が可能で、物資の運搬や機動的な避難の呼びかけができる機種もある。大規模災害が相次ぐ中、活動範囲は広がっているが、機体や操縦者を安定的に確保できるかが課題となる。

地震発生翌日の7月29日、陸上自衛隊からの要請を受け、ドローン関連企業などで構成する一般社団法人「日本UAS産業振興協議会（JUIDA）」はイオンモール熊本の搜索を始めた。

二次災害のリスクから自衛隊や消防隊員が立ち入れないエリアに、手のひらサイズの小型ドローンを投入。リアルタイムに映像を共有することで搜索が必要な場所を絞り込んだ。

イオンモール熊本だけでなく、煙突が崩落した日本製紙八代（やつしろ）工場（同県八代市）でも同様に、4日間で計13回搜索にあたった。活動を指揮した従二（じゅうに）光平さん（39）は「搜索の必要性が高いエリアにマンパワーを集中させることができ、早期の人命救助につながる」と意義を語る。

警察も過去の大規模災害でドローンを導入。今回の熊本地震でも搜索活動などに用いた。ドローンで撮影した俯瞰（ふかん）的な映像は現場から離れた警察本部にも即座に送ることができ、安全に目的地にたどり着くためのルート選定といった効率的な部隊運用の一助にもなっているという。

同じく人命救助を担う消防の現場でも活用が進む。総務省消防庁によると、平成29年4月時点で全国732の消防本部のうち70で導入されているのみだったが、昨年4月時点では8割近くの消防本部に配備された。

技術の進展に伴い、用途は多岐にわたる。JUIDAは令和6年の能登半島地震でも被災地へ出向き、建物内部の損壊状況の確認だけでなく、災害派遣医療チーム（DMAT）と連携して道路寸断で孤立した避難所へ医薬品を輸送した。土石流の危険がある土砂ダムの定点観測も行った。

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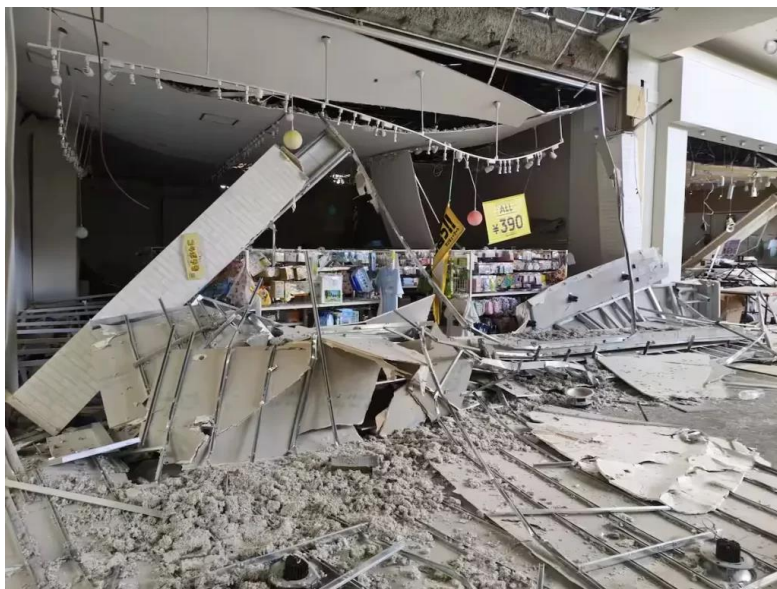
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スピーカー機能が搭載されたドローンは、防災行政無線のスピーカー音が聞こえにくい場所にも情報を届けられる。消防庁の検討会の報告書によると、仙台市や千葉県一宮町ではすでに、海岸の利用者に津波に関する警報を伝える役割を果たしている。

今後の活用拡大について、報告書では「屋外スピーカーを基本としつつも、スピーカーが整備しにくい沿岸部や山間部ではドローンを活用することが有効と考えられる」と言及された。

災害現場での需要は増すが、運用は現場任せになっている面が強い。ドローンに詳しい帝京大の坪井塑太郎教授（応用地理学）は「災害救助法でドローンを用いた人命救助や物資輸送のあり方を明確に位置付けるべきだ」と指摘する。現状では自治体ごとに予算の確保や費用負担の方法にばらつきがあるが、そうした問題が解消され、災害時の運用体制の構築がより進むという。

機能を生かすには定期的なメンテナンスや、安全に飛行させられる操縦者の育成、確保が欠かせない。坪井氏は「防災計画などにおける具体的なドローンの役割や運用手順の確立が急務だ」としている。



(Image courtesy of JUIDA)

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