DroneDeploy

Drones for Aerial Inspection in Solar, Roofing, and Insurance

Using Aerial Photos, Maps and 3D Models for Roof Inspection, Insurance Assessment, and Solar Panel Installation & Maintenance

Explore This eBook

01

Introduction: Inspect, Measure, and Design with Drones on the Job Site

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If you work in the solar, insurance, or roofing industries, chances are you've heard about drones. You might even be thinking about starting an in-house drone program. And for a good reason: drones are fundamentally changing the way industries operate.

Roofing professionals, contractors, insurance adjusters, and solar installers use drone maps and 3D models to quickly and accurately inspect, measure, and design roofs and solar panels—all from the safety of the ground.

The latest drone technology—like aerial mapping, thermal imaging, digital terrain modeling, and automated roof measurement—gives you a rich set of data to streamline your workflows and generate real-time insights. High-resolution drone maps far surpass imagery gathered by satellite or manned aircraft in accuracy, accessibility, and cost.

Recent advancements in computer vision and machine learning help eliminate error and deliver automated roof measurements with up to 99% accuracy. And all of this is done up to 3x faster than traditional methods, saving time and resources in the field.

With results like this, it's no surprise that roofers, inspectors, adjusters, and surveyors are all turning to drones and DroneDeploy. So what are you waiting for? Read on to learn how drones can transform your inspection workflows.

In this eBook, you will learn:

- How drones are transforming roof-based measurement and inspection

- Leading drone mapping workflows for the solar, roofing, and insurance industries

- Top tools and software integrations used by pros today

- How roofing, insurance, and solar companies benefit from deploying drones on the job site

02

The Benefits of Using
Drones for Roof Inspection

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Every roof inspector, claims adjuster, and solar installer has long dreamed of being able to do their job from the safety of the ground. Roof inspection is dangerous and time-consuming work. And maintaining accuracy and consistency within a set of rooftop measurements can be challenging. Manual measurement is inefficient and often results in errors or missed information, requiring teams to follow up with a secondary inspection.

With drones, you no longer have to worry about inaccurate data or having to return to a site to gather missed information. Unlike other solutions, the data you're working with is up-to-date, so you're not dealing with imagery that is weeks or months old.

With high-resolution drone maps and models, roof inspection and measurement becomes safer, streamlined, and more accurate. Here are some of the benefits of leveraging a drone solution in the solar, insurance, and roofing sectors:

High-Resolution Maps and 3D Models in Minutes

Unlike traditional methods, drones take minutes to collect roof data. And with our Live Map feature, you can instantly see your map appear in real time as the drone flies. Once you get back to the office, process and export your data for further analysis.

Accurate and Consistent Measurements

DroneDeploy's roofing solution uses computer vision and machine learning algorithms to generate automated measurements that are 99% accurate. This eliminates the potential for measurement error, and makes it possible to measure square footage, roof features, pitch, surface area, and slope consitently across every site.

Visual and Thermal Inspection from the Safety of the Ground

Your team no longer has to scale a ladder or walk out on a ledge to complete a visual inspection. With drones, you can safely inspect dangerous or inaccessible areas. Pinpoint issues—such as cracks, leaks, and damage—with high-resolution orthomosaic and thermal maps, and eliminate the need to climb a roof unless it requires repair.

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Rather than searching for a needle in a haystack, you have a map to tell you right where to look.

Grant Hagen, VDC Manager at The Beck Group

In-Field Analysis and Reporting

A mobile workforce requires mobile tools. As inspectors head out into the field, they need a software solution that operates in real time, across all devices. DroneDeploy's software is cloud-based and instantly updates so that teams are always on the same page. Whether sharing annotations, measuring areas of the roof, or generating reports, our software has your team covered in the field and back at the office.

A Rich Set of Data to Aid the Design Process

With drone data, you can move beyond inspections and use aerial imagery in the design process. Each drone flight captures high-resolution 3D point clouds that can be integrated with your existing design tools, or exported in the format of your choice. With richer datasets and export options, you can streamline workflows and shave days, or even weeks off a design timeline.

03

Drones for Solar Surveying, Panel Installation, and Inspection

In the booming—and highly competitive—solar industry, efficiency is crucial to your company's success. Whether you install solar panels, inspect and repair large arrays, or survey land for solar farm prospecting, drone maps and models increase both safety and efficiency. Here's how:

Solar Panel Installation and Design

Use DroneDeploy's Roof Report to accurately measure roofs, or generate 3D models for site planning and energy harvest estimates. Both maps and 3D models can quickly be integrated into industry software for an efficient and improved design process.


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With Drones, we save weeks on the turnaround time from initial design to deployable design.

Albert De Sousa, Operation Manager at iSolara

Panel Inspection on Solar Farms

Solar panels often overheat, go offline, or require maintenance due to excess dust, scratches or mechanical deficiencies. It's time-consuming and unreliable to inspect them from the ground. Improve team efficiency on site by conducting drone-based thermal inspections from the sky in minutes. Generate thermal maps and quickly detect broken photocells in panels faster than ever before.
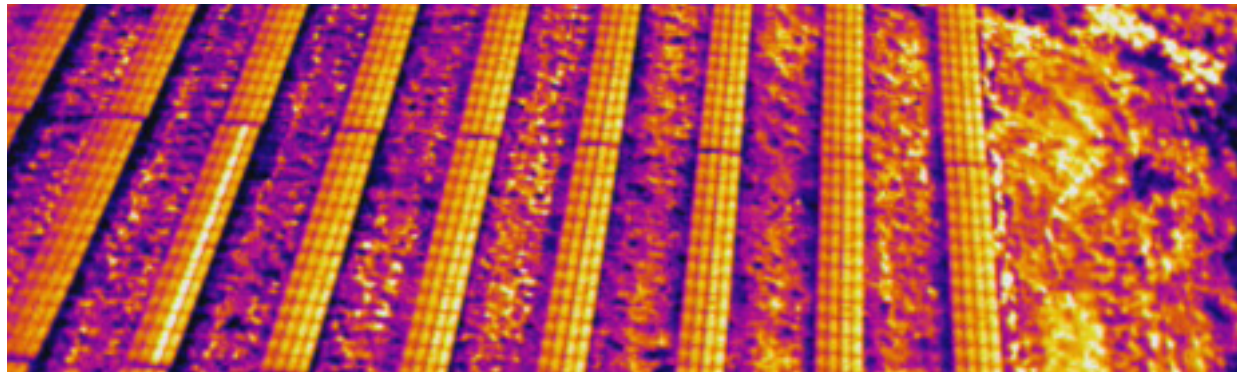
Survey Property for Solar Farm Prospecting

In the competitive world of solar farm prospecting, it's challenging to generate purchase bids quickly. By surveying land and creating digital terrain models with drones, you can cut this process down days, instead of weeks. The Result: faster turnaround times and a leg up on your competition.

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When working with an international team of drone pilots, it's paramount that we have a software solution that is able to scale with us as we grow.

Kingsley Chen, UAV Operations Coordinator at SunPower

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Drones for Insurance Inspections

Gaining a full picture of structural issues is an important part of processing insurance claims. Drones allow your team to gather on-demand information in a fraction of the time compared to traditional methods—so you can work quickly to identify issues, fast-track claims, and help clients make repairs. With a high-resolution drone map in hand, locating damage—such as broken shingles, punctures and penetration, leaks, and cracks—is much more efficient.

When a building sustains damage during a natural disaster, gathering timely, accurate information is crucial. Sometimes, of course, a site may not be accessible after a disaster. Even if it is, this process can take months with manual inspection. Drones help make the inspection process faster, safer, and more manageable.

Drones are more efficient than ground inspections—they give you a far greater set of data, which can be leveraged throughout the claims process. Read on to learn some of the key ways insurance and roofing pros use drones in the field.

Roof Inspection and Maintenance

Reduce the need for ladder assists and boots-on-the-roof data collection by conducting aerial inspections using drone-generated thermal and orthomosaic maps. Use DroneDeploy's roofing solution to automatically generate accurate measurements and estimate material costs from the safety of your desk chair back at the office**.**

Insurance Damage Claims

Streamline the insurance process with aerial inspections. With DroneDeploy, you can gather imagery from a typical roof in about 15 minutes, then move on to the next claim. This allows your team to safely inspect unstable roofs and collect imagery in otherwise inaccessible locations so you can analyze the data safely. The result: teams using drones report up to a 3X increase in field productivity from faster workflows.

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Insurance adjusters need something accessible, easy to use and easy to understand. They need to go fast. DroneDeploy provides them a quick response to their needs.

Emilien Rose, Owner at Dronotec

DRONOTEC

Insurance Appraisals and Estimates

Fast track insurance appraisals and estimates with drone data. Thoroughly and safely inspect roofs for faster, more accurate appraisals. Share maps, photos, and 3D models with collaborators instantly to kickoff the process before your team even leaves the job site.

Reporting and Collaboration

DroneDeploy's cloud-based platform helps everyone stay on the same page. Use built-in annotation tools to share notes and photos, collaborate with remote teams, and keep stakeholders up to date on the latest information. These tools reduce turnaround time, and provide visual context to problems on the job site.

Add annotations to maps with notes and photos to keep your team on the same page.

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Common Tools and Integrations
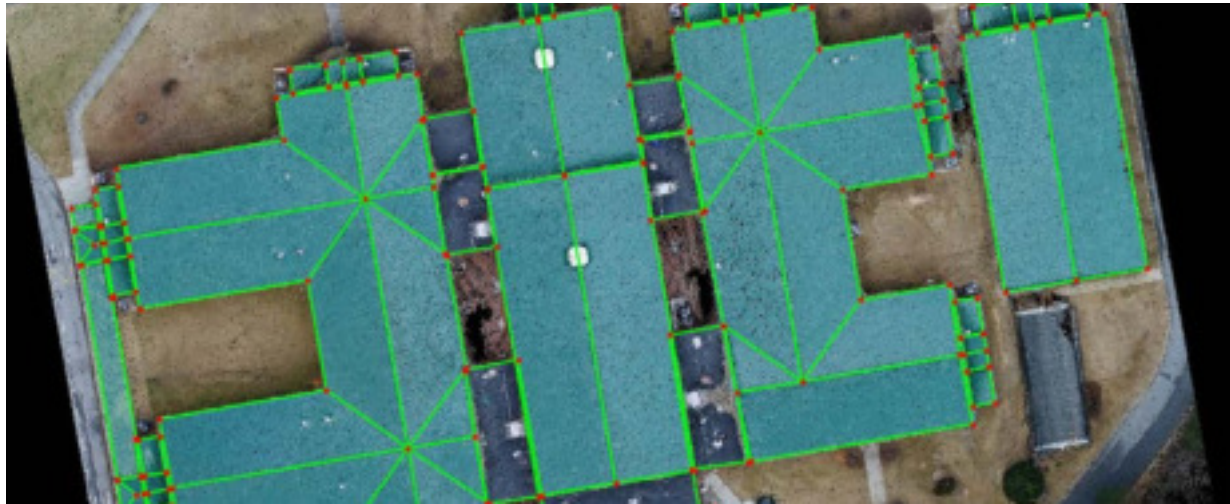
Roof Report

Roof Report from DroneDeploy is a drone-based inspection and measurement solution that allows you to automate roof measurements and generate reports from drone-collected imagery in a matter of hours. All measurements are 99% accurate and verified by third parties.

Roof Report provides a comprehensive report of every roof analyzed and includes a property overview, edge measurements (perimeter, slope, pitch, surface area), edge types, surfaces, and roof features. Share roof reports with customers, or use them to conduct inspections and generate insurance estimates.


SEE SAMPLE ROOF REPORT

Uncover real-time insights with Thermal Live Map.

Live Map: Real-Time Drone Maps for the Job Site

Live Map is the only real-time aerial mapping solution on the market. It turns hundreds of acres into consumable maps without the need to go back to the office. You can create standard RGB or thermal maps with DroneDeploy. Get accurate aerial views of your job site and uncover insights faster than ever before.

Use a standard Live Map to get an immediate aerial view of a roof or property, or use a thermal Live Map to spot leaks, cracks, damaged solar cells, and more while on site. Live Map uses the latest advancements in edge computing and photogrammetry to stitch maps in real-time as the drone flies, so you never have to wait for your data. Learn More.

Case Studies

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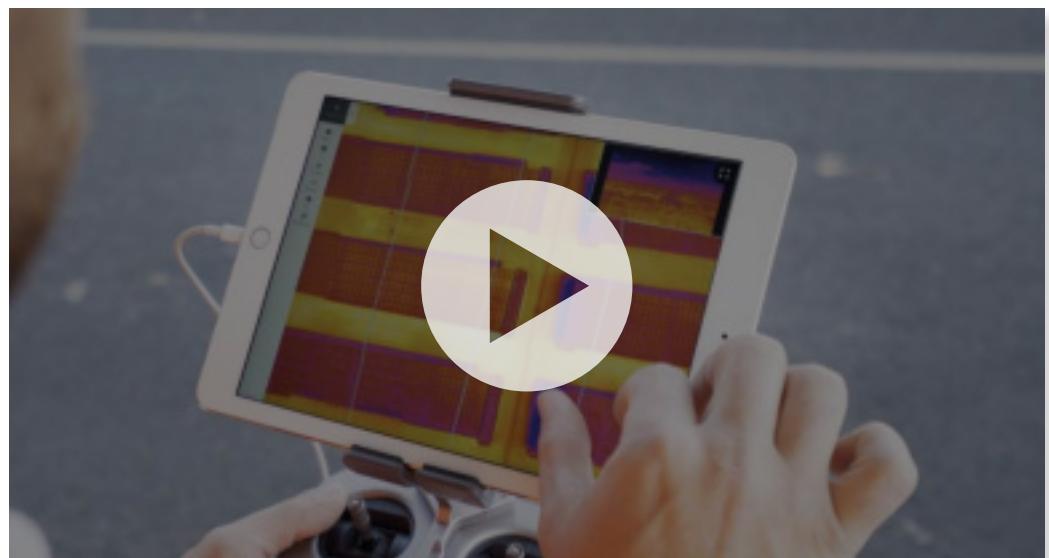
Drones transform workflows and help companies make smarter decisions. But don't take our word for it. Here are three examples of DroneDeploy customers in the insurance, solar, and roofing sectors that actively benefit from drone data on a daily basis.

iSolara Shortens Solar Panel Design Cycle by 70% with Drones

When they designed a solar array proposal for roof panels on a calf barn, Solar iSolara integrated drone-generated 3D models of the structure into 3D Aurora. The design team used the 3D models to complete shade designs and radiation maps right on top of the model. With better imagery and a 3D model that could easily be manipulated as part of a team collaboration, sharing and modifying the designs became much more streamlined.

The entire design process for the solar array was reduced from about ten man hours to just under three hours, representing a time savings of 70%.

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Now we can design directly from the [drone] images. We have the tools to simulate the roofs in a fraction of the time.

Albert De Sousa, Operation Manager at iSolara

iSolara Solar Power

READ THE FULL CASE STUDY

SunPower Leverages DroneDeploy to Map Solar Farms and Manage a Growing Team of UAV Operators Around the World

Solar industry giant SunPower combines drone maps with their proprietary software to streamline prospecting and design cycles. The company provides high efficiency solar panels and power plant technology for large-scale solar developers around the world. As part of this process, SunPower offers site evaluation and layout design services. DroneDeploy helps the company's growing drone program mobilize its international fleet of operators and build solar farms on a global scale.
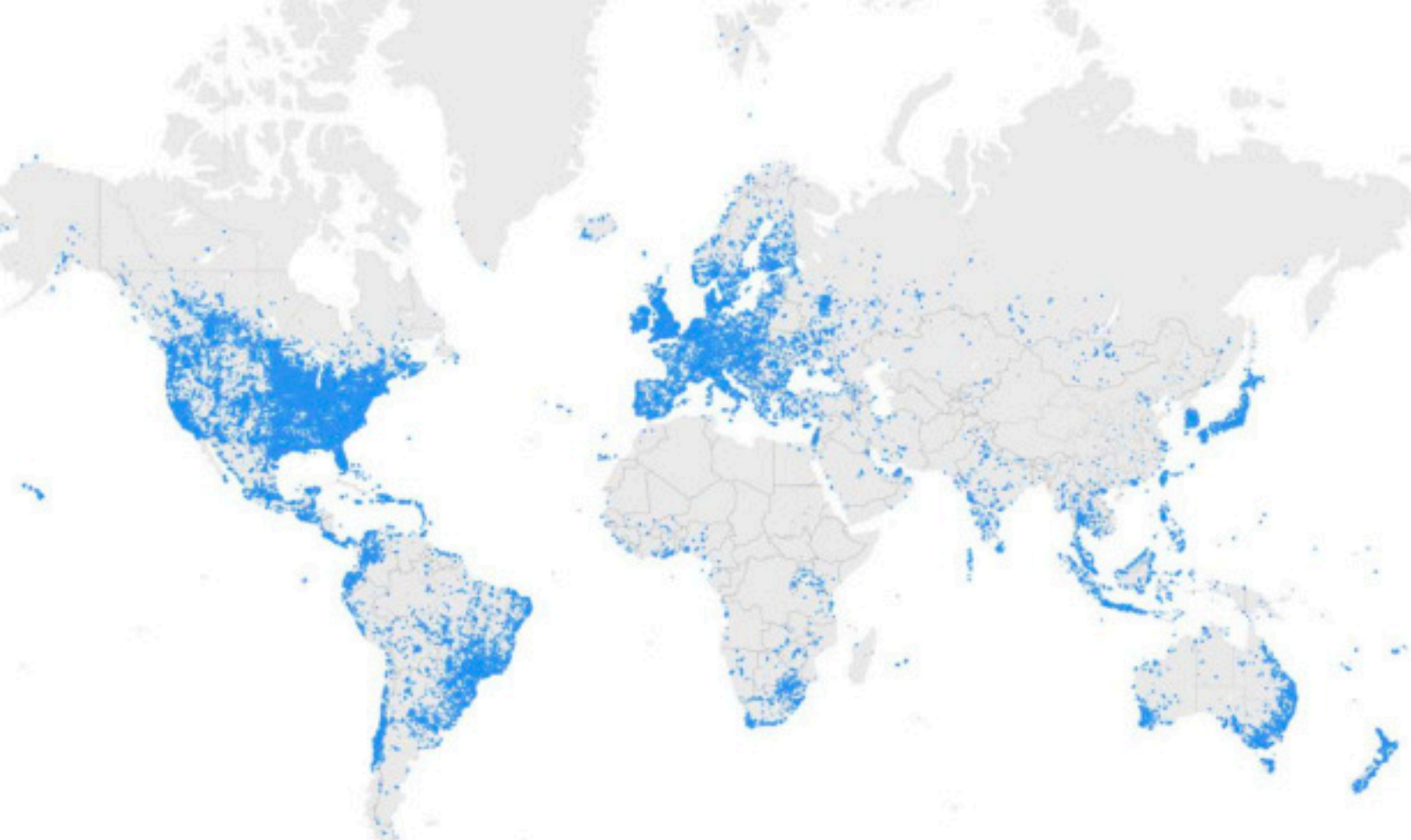

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Kingsley Chen, UAV Operations Coordinator at SunPower

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READ THE FULL CASE STUDY

Areas Mapped with DroneDeploy

7 Continents   **180 Countries**   **30 Million Acres**

About DroneDeploy

DroneDeploy is the leading cloud software platform for commercial drones, and is making the power of aerial data accessible and productive for everyone.

Trusted by leading brands globally, DroneDeploy is transforming the way businesses leverage drones and aerial data across industries, including agriculture, construction, mining, inspection and surveying. Simple by design, DroneDeploy enables professional-grade imagery and analysis, 3D modeling and more from any drone on any device.

DroneDeploy is located in the heart of San Francisco.
To learn more visit us online and join the conversation on Twitter.

DroneDeploy   **www.dronedeploy.com**   **@DroneDeploy**