

Myles Howard

Instructor Stephens

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Intro to sUAS

The Supplement of Drones in GIS

In GIS, drones provide many uses ranging from mapping, observing the earth, atmosphere, vegetation, and much more. With more drones getting the green light to be used in the GIS field, we see drones become more prevalent as time goes on. Today, I will talk about the different fields that drones are used in GIS, what the drones do in those fields, and the future of drones and GIS.

When it comes to GIS, many fields go along with GIS. Some major ones that deal with drones and GIS include weather monitoring, landscape modeling, habitat surveying, assessing damage after a disaster, and topography. In meteorology, the weather needs to be monitored so that we can gather the information that will tell us the temperature, humidity, wind speed/direction, dewpoint, and even when natural disasters are probable.

Landscape modeling plans for future landscape projects. This is also a field that businesses tend to have a big part in because they want to see if the place that the project is located will be suitable or the future or if it won't be suitable.

Habitat surveying is a field that monitors different habitats. This includes monitoring the habitats before, during, and after construction. This also looks at things like animal life and plant life in the surrounding area to see what changes are happening in the habitats daily.

Topography is a field that deals with detailed descriptions or representations on a map of the natural and artificial features of an area. It also studies the shape and features of the land. Some main types of topography include Karst topography, mountain topography, and vegetation, elevation, and glaciers.

In these fields, drones provide many uses and benefits. In the weather monitoring field, drones can be used by flying into the lowest layer of the atmosphere to record the temperature, humidity, and wind to help improve weather forecasting models, or they can drop small drop pods with parachutes that collect data as they descend through the atmosphere. Because of these uses, scientists can evaluate the current weather models and correct future models.

In the landscaping modeling area, drones can be used to capture the whole project in a single shot with aerial angles. Then they can be used to map out the area of the project and take progress pictures and monitor the field production of the project. They can also be used to provide planners with up-to-date data within a short amount of time without the help of many staff members.

In the habitat survey area, drones can be used to look through the water and map shallow habitats. They can also monitor sensitive habitats for a long period after construction has occurred. They also can look at the habitats at an aerial view to see things that people at ground level might miss or pass over. Drones can also help evaluate vegetation before and after a fire occurs, which additionally helps assist with streambed and wetland improvements, pond construction, and overall habitat assessment in an economically friendly way.

When it comes to assessing damage after a disaster, drones can gather close-up information from different angles or viewpoints. They can also do damage assessments in a

timely manner. This allows efficient and safe practices when it comes to looking for survivors and seeing how much damage has been done. Areas that are hit with earthquakes and floods benefit from 3D mapping and visual imaging. Drones are a more efficient means of damage assessment than manned aircraft or even satellites because the use of manned aircraft and satellites are expensive and take time whereas drones are less costly and have rapid response times. In the case of a fire, drones can fly in low visibility areas and can drop fire retardants much more safely than manned aircraft. Some drones are also fitted with communication systems that allow them to communicate between the command centers and the firefighters that are on the ground. These uses for the drones show why they are being used more and more in these kinds of situations as they can save lives and prevent damage in bad situations.

When it comes to topography, drones are used to capture and generate high-resolution pictures and 3D areas that have low quality, outdated, or even no data at all, which allows high-accuracy maps to be made quickly and easily. They can also be used to extract features from the images such as drains, signs, curbs, and fire hydrants. Drones also help simplify topographic surveys for land management and planning.

The future of drones in GIS is looking more and more promising with more drones getting the green light for passing safety inspections. As drones that are powered by artificial intelligence are becoming more cost-effective, the more GIS data we will be able to capture more efficiently. We will also be able to gather a greater depth of information than ever before. The UAS technologies will allow us to efficiently produce more and better mapping.

Drones will also play a big part in warfare because we have mini swarming drones and some drones that can open doors. These will play a big part in a hostage situation and urban counterterrorism.

In the aid and delivery aspect of the future, drones already play a part, but they will play an even bigger part in the future. They will be able to get to the scene of an accident and even be able to drop off emergency supplies to the on-site doctors or the people in the case of natural disasters.

In conclusion, the use of drones will never fade. Neither will their use in GIS. Drones provide many uses in many different fields when it comes to Geographic Information Systems. They can do simple things like map out areas for building projects or surveying habitats, but they can even provide help and save human lives in emergencies.

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