

Pasadena Citizens' Advisory Council

Use of Drones in Industry

February 27, 2024

“Interesting and informative” was how members and guests at the February Pasadena Citizens' Advisory Council (PCAC) meeting described presentations on the *Use of Drones in Industry*. Mark Mokrech, PhD, a research scientist and lecturer at the University of Houston – Clear Lake, talked about what drones are, how they are used in general, and key regulations. Roy Martinez, a member of Chevron's Global Community of Practice for Uncrewed Aircraft Systems, described how Chevron uses drones across the business in exploration, pipelines, refineries, and much more.

What most refer to as drones are called Uncrewed Aircraft Systems by the Federal Aviation Agency, which regulates both commercial and recreational drones. Mokrech said that drones may be piloted manually or autonomously and “geofenced” to confine them to a specific area. They can be powered in various ways and equipped with various sensors specific to their usage. For example, optical cameras take photos while sniffers detect gases. Mokrech's group at UHCL has used drones to conduct a bird count, track a prescribed burn, and inspect structures. Coming someday may be drones that carry humans. Among the details in Mokrech's attached slides are descriptions of what it takes to become a drone pilot.

Martinez said that improved worker safety and better data are two of the advantages that drones provide industry. A photo of workers atop a windmill to inspect its blades made it clear that using a drone to inspect high structures is safer than having people up there to do so. In addition, a drone uses cameras to inspect the windmill blades rather than workers using binoculars. Industry is also using drones for environmental monitoring, inspecting power lines, and flying pipeline corridors to look for leaks. A drone may act as a cell tower in a remote area to assist in communications among emergency responders. Plant representatives said that local plants are using drones in several ways.

Drones must be registered and marked with identification, which assists industry and government agencies with security.