



Benefits

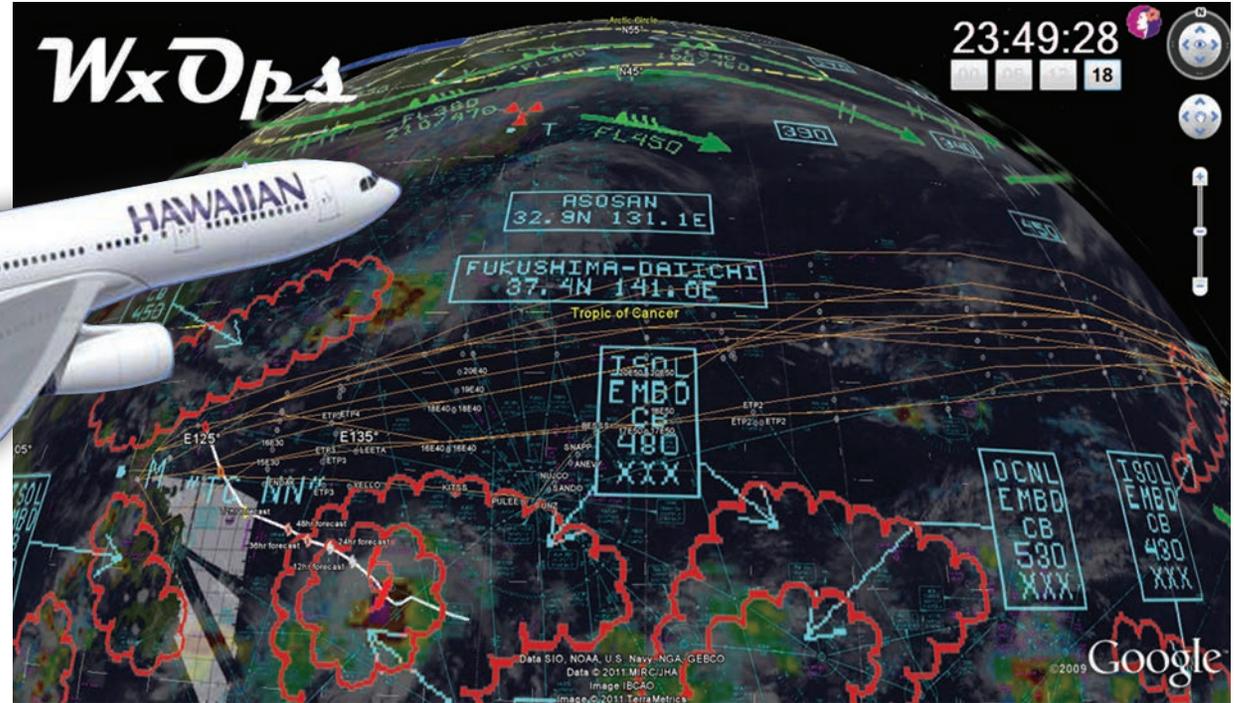
In 2009, while working with NASA and NOAA, Shipley received a phone call from the dispatch manager at Hawaiian Airlines, Mark Spence. Also owner of a small company called System Operations, Spence explained that Hawaiian was already using Google Earth in their dispatch operations, and that he was interested in what Shipley was doing.

“He said I was doing things that Hawaiian wanted to do in Google Earth,” says Shipley. “They were looking at four-dimensional things like volcanic ash plumes and cyclones, and they wanted to know where they were.”

Together, Spence and Shipley formed a joint venture company called WxOps. After providing a demonstration of WxAzygy on Google Earth to Hawaiian Airlines, the airline started using the software to help see four-dimensional data in the skies and route its planes accordingly. Now the technology helps the airline manage flights carrying over 6 million passengers a year from Hawaii to the western United States, the South Pacific, Australia, and Asia.

“Their dispatchers are in touch with their pilots all the time, and this system allows them to roll with the punches as conditions change,” says Shipley.

Spence says he and his team are able to make better business decisions based on business intelligence, due to real-time data, which also results in increased safety and fuel efficiency. In particular, the technology assists the airline in predicting turbulence, as well seeing where lightning is striking. According to Spence, current



WxAnalyst created a user interface for Google Earth to visualize NASA satellite data. The company then worked with Hawaiian Airlines to show data about the skies (above) to schedule commercial planes more precisely.

weather models correctly predict convection, frontal boundaries, tropical movement, icing, and turbulence approximately 70 percent of the time. Now, he says, “We can combine various data sets to get a better picture.”

Hawaiian Airlines is also benefiting by scheduling aircraft more precisely. In the winter of 2012, a storm was predicted to affect a flight from Honolulu to New York. After using WxAzygy, Spence released the flight. “We landed safely five hours after the last snowflake fell, while the other carriers cancelled flights,” he says. “It allowed us to operate when we might have been more reluctant, because I would have lacked the necessary business intelligence to make that decision.”

In the future, Spence and Shipley predict pilots will be able to use the technology onboard during flight to make decisions about where to go to avoid dangerous situations. Aside from airlines, Shipley is also working with a potential customer who wants to use the technology for radar data on NASA World Wind, a virtual globe system similar to Google Earth. Shipley is also exploring how

to use the technology to visualize underground data. “It could be beneficial for geology educators and students, as well as valuable to industries such as mining and fracking,” he says.

The biggest challenge Shipley is currently facing is having too much good information. “We have over 50 data layers and it becomes unintelligible. We are trying different things to see what works. If you have 50 layers and point at something, what are you pointing at? Which layer?”

Whether for pilots, students, or scientists, one thing is certain: the technology will continue to inform people in beneficial new ways. In line with Ford’s idea, this NASA spinoff will help to keep people young. “NASA sees a lot of value in the dissemination of products using technology like this,” says Severance. “It helps people see that computer graphics can be used to gain a better understanding of natural phenomena.” ❖

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