

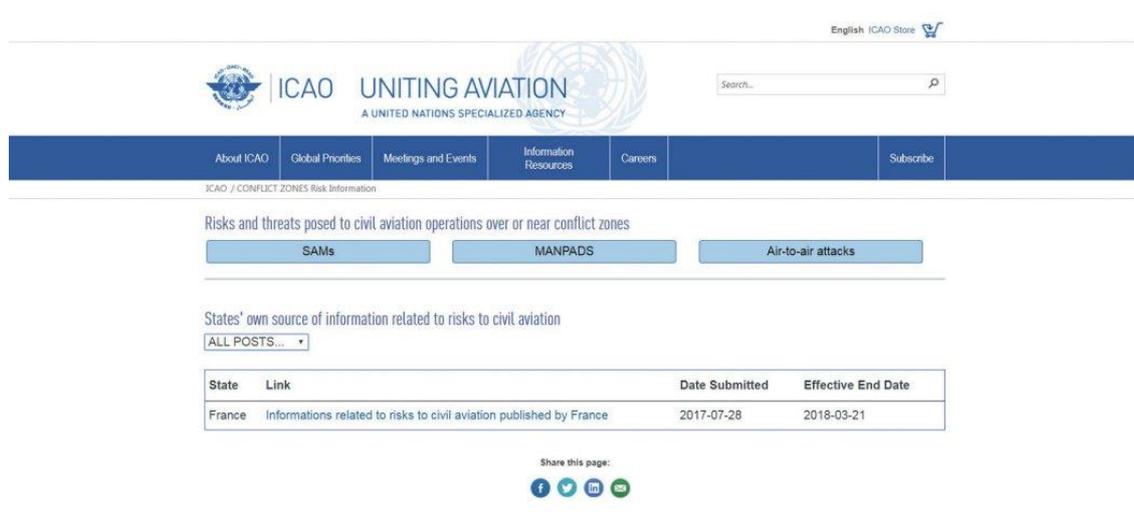
CZIR shortcomings trigger broader search for conflict zone data

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What is being done to improve or replace the ailing ICAO information repository, as advisory notices dwindle to almost nothing? *Ben Vogel* reports

As air traffic grows around the world, it is more important than ever for airlines to have clear, accurate, timely, and unequivocal information on conflict zones to support effective risk assessments when planning flight operations. Airlines – individually and collectively – must review their information sources on conflict zones in close co-operation with their regulators.

To cite one recent example, on 27 November, the European Aviation Safety Agency (EASA) announced a six-month extension of its conflict zone advisory for airspace users in North Sinai, part of the Cairo Flight Information Region (FIR). Civil aviation agencies in Germany, the United Kingdom, and the United States have also each issued similar guidance to operators.



Screenshot of the ICAO CZIR portal homepage, taken on 12 December (ICAO)

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The extension comes amid continuing violence in the Sinai Peninsula between Islamist terrorists and Egyptian government forces, typified by the 24 November bombing of a mosque in North Sinai, in which more than 300 people were killed.

The main threat to aircraft flying below Flight Level 260 over North Sinai stems from the potential use of manportable air defence systems (MANPADS) or low-calibre anti-aircraft guns by anti-government groups. Egyptian military helicopters were downed in separate incidents in 2014 and 2015, and Islamic State (IS) terrorists in Egypt posted images on social media showing them operating a Russian-made 9K32 Strela-2 (SA-7 'Grail') in North Sinai.

The EASA advisory reflects the continuing risks to civil aviation in conflict zones. The problem came to prominence in July 2014, after Russian-backed separatists shot down Malaysia Airlines Flight MH17 over eastern Ukraine with a 9M38 Buk (SA-11 'Gadfly') missile.

In response, the International Civil Aviation Organisation (ICAO) set up a Task Force on Risks to Civil Aviation arising from Conflict Zones (TF RCZ). It led directly to the establishment of an online Conflict Zone Information Repository (CZIR), which went live in April 2015. The aim of the CZIR was to increase the amount of real-time information available to flight planners, for journeys flying above conflict zones – but ICAO later limited declarations only to information submitted with approval from member states, reducing the flow of advisories to almost nothing. “CZIR postings will now be restricted to information which strictly pertains to conflict zones and posts will only be made immediately available when the risk information is submitted by the state where the conflict is occurring,” the ICAO Council announced in July 2016.

ICAO and other organisations such as the International Air Transport Association (IATA), as well as national aviation security agencies, are now searching for a better method of collating, analysing, and disseminating conflict zone risk data. IATA Director General and CEO Alexandre De Juniac has called for more work on protecting flights over or near conflict zones. CZIR was “a good start but a more nimble and robust system needs to be established”, he told *Jane's* in 2017.

[Continued in full version...]

Data from private sector

Critics of the CZIR describe fundamental flaws that arguably undermine its ability to support the air transport industry in an effective manner. The main problems are political: diplomatic restrictions placed on ICAO as a UN body ensure that many reports are not posted to the site, and the same constraints also dilute the quality, timeliness, and comprehensiveness of these posts.

The CZIR therefore only provides a space for certain information to be shared under certain circumstances, and there are no specific criteria on what type of information merits inclusion in the repository. In addition, member states are pressed to self-report security issues which can be viewed as sensitive in nature; and member states can rebut any information submitted to the CZIR – this hinders information-sharing, and opens up the potential for diplomatic disputes.

During the Global Air Navigation Industry Symposium in December, *Jane's* asked ICAO about these criticisms and the possibility that the CZIR could be augmented or replaced by data sourced from a third party, but an official would only refer to the 2016 declaration limiting the scope of posts.

One possibly complementary solution to CZIR could come from risk assessment and risk management software developed by UK-based Osprey Flight Solutions. “The system went live a number of weeks ago and we formally launched at the AVSEC World conference in Abu Dhabi,” Osprey CEO Andy Nicholson told *Jane's*.

The bespoke software has three main components: a data collection and synthesis with machine learning; a data management system which provides the analysts insight into historic and emerging data trends as well as risk assessment management; and an information delivery component that generates risk reports for airports, countries, and overflight risk areas.

The software has been beta-tested by more than 10 organisations representing all sectors of the aviation industry: regulators and industry bodies, airlines, business jet operators, flight planning companies, air ambulance providers, and cargo carriers, as well as security and aviation consultancies. These organisations come from the United States, Europe, Middle East, and Southeast Asia.



Andrew Nicholson, CEO of Osprey Flight Solutions (Osprey Flight Solutions)

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Nicholson described the Osprey offering as a broader solution than the CZIR. “It is much more than an information sharing resource – it’s a fully integrated aviation security risk management platform,” he said, adding that its main purpose is to deliver “fast, accurate, unbiased, and apolitical aviation security information and analysis to aviation operators large and small”.

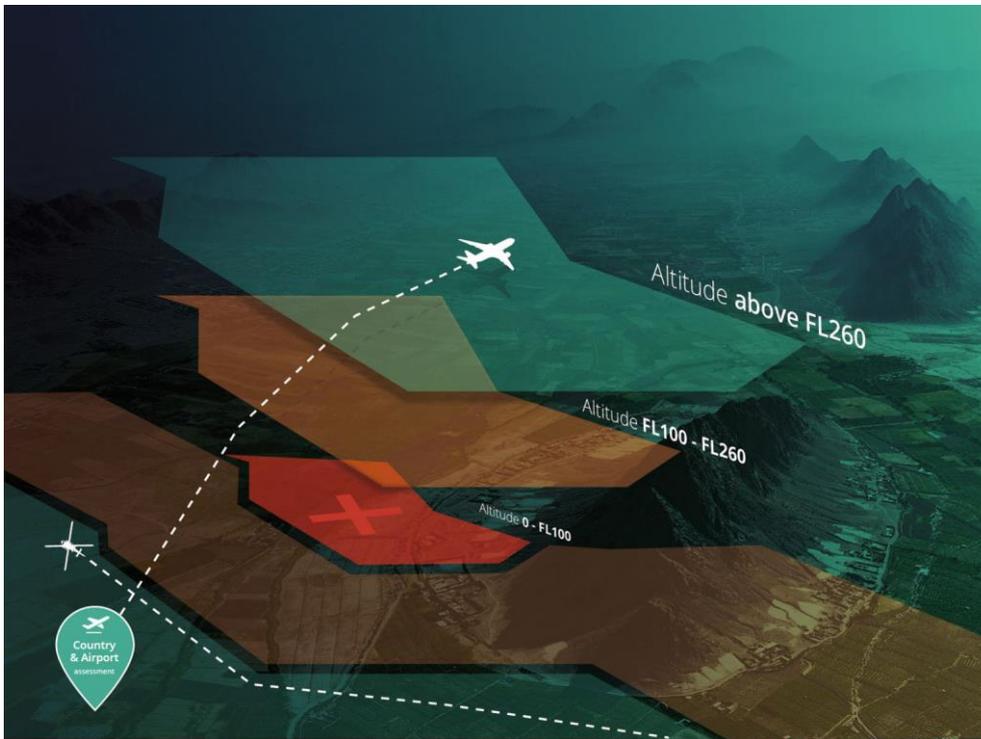
There can be no analysis without raw data, so Osprey developed a proprietary structured database of more than 160,000 aviation security incidents across 22 separate event categories. “The database is continuously updated via automated web scraping of nearly 200,000 sites in over 60 languages, coupled with machine-learning patterns,” Nicholson noted. This allows the collation of data on aviation security incidents verified by multiple sources.

“Our analysis team uses the database to maintain our operational aviation security risk assessments for airspace, airports, and countries. The database is our primary resource for conducting geospatial and quantitative historical analysis of aviation security incidents.”

Whereas the CZIR was set up to focus only on government reporting of threats to overflights in conflict zones, Osprey analyses the security environment at airports and in individual countries, as well as providing overflight risk information.

As data is automatically gathered, Osprey ensures resilience and instantaneous aviation security assessment at the airport and country level, by leveraging near real-time scoring updates via automated benchmarking of 10 specific risk criteria.

“The Osprey analytical methodology for assessing airspace security incorporates evaluation of 20 specific risk criteria and leverages machine learning to identify trends within the global aviation security environment,” said Nicholson. When assessing the security of airspace, the Osprey solution evaluates overflight risk at three separate altitude levels: FL0–FL100, FL100–FL260, and above FL260. “This allows for comprehensive, consistent, and accurate risk assessment of global airspace, airport, and country-level aviation security,” he noted.



When assessing the security of airspace, the Osprey solution evaluates overflight risk at three separate altitude levels. (Osprey Flight Solutions)

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Assessments from Osprey blend human analysis with machine-learning analytical techniques. Osprey analysts monitor social media and internet search engines for aviation-centric keyword trends on social media and internet search platforms. “In addition, we leverage analytics and mapping of aviation-centric keywords in traditional media via big data querying and machine learning. The end result is an unparalleled ability to produce geospatial mapping and modelling of aviation security incident intensity levels for predictive trend analysis,” Nicholson claimed.

Approval from IATA or ICAO is not essential, although Nicholson said he hopes it would come in time. He added that “feeds from airlines and governments are very useful to ensure our data and analysis are as complete as possible”.

To supplement the assessments of overflight risk areas, airports and countries available to operators, the Osprey analysis team issues daily alerts on emerging aviation security incidents. Multiple alerts are issued daily on incidents that are assessed to have a significant potential impact on the aviation industry, or where the incidents re-enforce existing recommendations for an overflight risk area, airport, or country.

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