

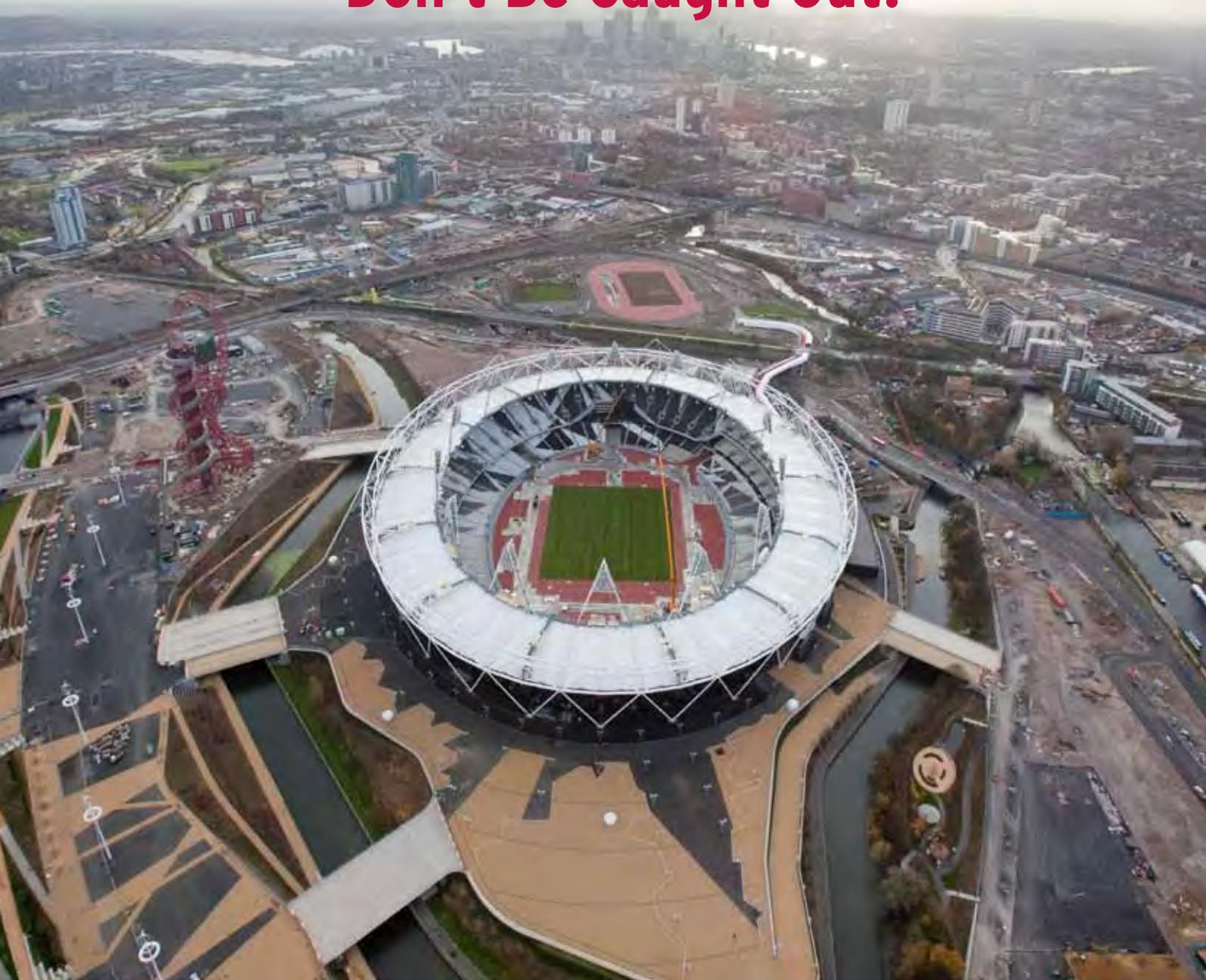
Navigation news

MAR/APR 2012

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The Magazine of the Royal Institute of Navigation

Olympics Airspace Restrictions - Don't Be Caught Out!



V-Force

Navigation in starkly different environments



Bread of Heaven

The hidden cost of GNSS vulnerability



Longitude In Space

The challenge of Apollo 8

PLUS International News, Navigation Events, RIN News, People, Places and much more...



TOPNAV IS COMING!

If you're a general aviator and your visual navigation skills are up for a challenge, join us for this year's TopNav events -

TopNav North: 12 May at Retford (Gamston) at 10.30

and

TopNav South: 19 May at White Waltham.

The competition is open to teams of general aviators, who are challenged to navigate a route 'blind,' clue by clue, and test their skills in the arts of map-reading, dead reckoning and radionavigation.

If you have what it takes to be a TopNavver, download a briefing and entry form from www.rin.org.uk, or talk to staff at any RIN General Aviation event.



Royal Institute of Navigation

Science Technology Practice



The cover of this issue shows an aerial shot of the Olympic Stadium, London.

Picture: ODA.

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Annual Subscriptions to Navigation News are included within the membership of the RIN. Non-members may purchase an annual subscription by contacting the publisher.

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PUBLISHER

Navigation News is published bi-monthly on behalf of the Royal Institute of Navigation by CGT Interactive Ltd.

Any facts stated or opinions expressed in the magazine are the sole responsibility of the contributor. Neither the Royal Institute of Navigation, the Editor nor the publishers can be held responsible for any injury sustained in reliance thereon.

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 ISN 0268 6317

MARCH/APRIL 2012

Navigation news

The Magazine of the Royal Institute of Navigation



How touchy-feely are you? You might have noticed something slightly different about this issue of *Navigation News*. In a drive to cut costs we have decided to have the magazine printed on lighter weight paper, which is not only cheaper in itself but also less expensive in postage to distribute. You will still receive six issues per year, and – importantly – the content will be as good as ever, but it will cost less to produce.

The Institute would be nothing without its members. This statement may be axiomatic for a membership organisation, which by definition exists not only for but also because of its members. But more than that – much more – we depend hugely upon the generosity of our members to give up their spare time in two important respects: firstly, to take on roles and tasks that deliver much of our output; and secondly in the governance of the Institute. Whether it is organising a major conference or a short meeting, invariably it will require members voluntarily to be involved in one way or another. On the governance side we need to elect members to Council to become Trustees of the Charity, and others to sit on the three committees that report directly to Council. These committees are: Finance, Technical, and Membership & Fellowship – usually abbreviated to M&F. Then there are the branches and SIGs that would not function without the efforts of the members that go into their running. So without members' involvement we would not be able to deliver a programme, nor could we function as an organisation.

Which brings me to my next point: There is usually a steady turnover of people serving on the main committees, so we need to know who is prepared to volunteer their services and what their skills and backgrounds are. Ideally, for example, members of the Technical Committee will have a strong technical and/or academic grounding. At the moment there is a particular need to recruit new members to the Finance Committee, so please let me know if you would like to volunteer. All the committees meet four times per year in the RIN offices in London for which reasonable travel expenses may be claimed. I look forward to hearing from you!

Peter Chapman-Andrews
 Director, RIN.

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Galileo Meets Kepler... In Surrey



(L-R) SSTL CEO Dr. Matt Perkins, Minister for Universities and Science David Willetts, SSTL Executive Chairman Sir Martin Sweeting, ESA Director General Jean-Jacques Dordain open SSTL's Kepler technical facility.

Leading UK satellite manufacturer Surrey Satellite Technology Ltd (SSTL) kicked off 2012 in barnstorming fashion, inaugurating a new technical facility on 25 January. SSTL delivered the GIOVE-A and GIOVE-B satellites, and is now working on delivering some of the operational Galileo satellites that will establish Europe's navigation satellite constellation.

ESA Director General Jean-Jacques Dordain and the Rt. Hon. David Willetts, Minister for Universities and Science joined Sir Martin Sweeting and SSTL's CEO Dr. Matt Perkins for a tour of the purpose-built Kepler facility in Guildford, Surrey where 14 Galileo programme satellite payloads and several SSTL spacecraft are currently under construction.

Jean-Jacques Dordain said the Kepler facility would 'become the birthplace of many satellites and a cornerstone to an industry that the UK and Europe could be proud of.'

The 3,700sqm (40,000 sq ft) Kepler Technical Facility building is co-located with SSTL's headquarters building and will house approximately 40 permanent staff and anything up to 100 further project-specific staff from across the company at peak test and integration periods.

The Kepler inauguration was followed within weeks by an announcement from the European Commission that a consortium led by OHB System AG and SSTL had been awarded a contract to build a further eight Galileo satellites.

Matt Perkins said he was delighted the company had been chosen to continue development of Europe's operational navigation system. The eight new satellites will now follow the 14 existing orders into production at the Kepler facility.

Leap Second Decision...Deferred

The ITU Radiocommunication Assembly, sitting in Geneva on 19 January, decided to defer the development of a continuous time standard in order to address the concerns of countries that use the leap second in Coordinated Universal Time (UTC) - such as GMT.

The decision should ensure that all technical options have been fully addressed in further studies. These will involve more discussion within the ITU membership and other organisations and will be referred to the next Radiocommunication Assembly and World Radiocommunication Conference (WRC) in 2015. Leap seconds have been implemented since 1972 to compensate for variations in the speed of the Earth's rotation relative to the constant atomically-derived UTC. Leap seconds ensure that UTC remains within 0.9 seconds of Earth rotation time (known as UT1).

UTC is defined by ITU's Radiocommunication Sector and is maintained by the International Bureau of Weights and Measures (BIPM) and the International Earth reference and Rotation Service (IERS).

Dropping the leap second would make a continuous time scale available for navigation, communications and computer systems – at present, having to inject leap seconds can be extremely disruptive.

But social and legal consequences could arise when the accumulated difference between UT1 and UTC become perceivable - 2-3 minutes in 2100 and ~30 minutes by 2700.

The ITU Secretary-General believes that the postponement decision will ensure that all stakeholders have been 'adequately associated with a step which will clearly influence our future.'



No expense spared to ensure politics as usual.

Westminster Uses GPS-Guided Gritters

As the winter bared its teeth in January and February, Westminster Council deployed navigation technology to ensure residents could get around – in the form of GPS-guided gritters.

The council invested in a fleet of the gritting trucks following the snowbound scenes of Christmas 2010. Each truck can carry up to eight tonnes of salt and is fitted with a GPS unit, so where and when they are can be monitored. Sensors also indicate whether or not the vehicles are actually spreading salt or just travelling.

The trucks' GPS units mean that drivers can be instructed where to go and the exact route to take, allegedly 'delivering greater ground efficiency and ensuring salt is spread where most needed.' Cabinet member for city management, Councillor Ed Argar, said: 'Although we have had a mild autumn, Westminster is never complacent when it comes to getting ready for winter weather; we have not relented in making sure that everything is in place to combat ice and snow.' As the irony of the expenditure, the austerity economy and the relatively small snowfalls this year sinks in, it is worth remembering that there are 1,000 kms of road and pavement within Westminster: The length of pavement alone is the distance of a journey from London to Glasgow and back.

Comprehensive LiDAR Map Launched

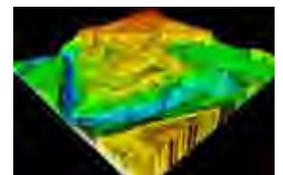
Aerial survey company Bluesky has launched a comprehensive online LiDAR map of the UK, covering approximately 75 per cent of England and Wales, including all major towns and floodplains, plus areas of Scotland.

The LiDAR coverage ranges in vertical accuracy from 5 cm to 15 cm, and in spatial resolution from 25 cm to 2 m. Visitors to www.bluesky-world.com can search the online map using a place name, postcode or geographical co-ordinate before purchasing their chosen area and downloading digital files.

'By combining data from many sources, including our own archive, we have created an accessible and comprehensive online coverage of LiDAR data,' said Rachel Tidmarsh, Bluesky's Managing

Director. 'We can now supply off the shelf data or work with clients to derive a customised solution for their specific project requirements.

'LiDAR has until now been a high-end solution; delivering very accurate measurements, usually for small projects areas, with a price tag you would expect,' added Tidmarsh. 'By launching the data online we are able to provide wider access to existing data, encouraging more diverse applications.'



An example of the LiDAR data available online.

Costa Concordia Tragedy - Reactions

At least 14 people died when the cruise ship *Costa Concordia* ran aground with more than 4,000 passengers and crew onboard on 13 January, off the Italian port of Civitavecchia.

Most passengers escaped in lifeboats, but evacuation efforts were hampered by the angle of the tilting ship. The Coastguard launched boats and helicopters to carry stranded passengers to safety.

While the official investigation into the event is ongoing, reactions from the maritime world to the information that has emerged through the media have ranged from sympathy for the families of those lost to indictments of cruiseship safety standards.

Nautilus International, the trade union for maritime professionals, said the incident should act as a wake-up call to the shipping industry and those who regulate it. General Secretary Mark Dickinson added that in the centenary year of the *Titanic* disaster, the doomed ship still clearly held lessons for the industry in the 21st century.

In particular, Nautilus is concerned about the rapid recent increases in the size of passenger ships - with the average tonnage doubling over the past decade.

'Many ships are now effectively small towns at sea, and the sheer number of people onboard raises serious questions about evacuation,' Mr Dickinson pointed out.

In the wake of vociferous blame for the incident being - at least prematurely - heaped on the *Costa Concordia's* Master, the union added that it feared the way in which the captain had been singled out for blame at such an early stage would serve to obscure attention from being directed to the more profound underlying issues and the scrutiny that should be given to long-standing concerns over some

of the basic principles governing the safety regime for such vessels.

IMO Secretary-General Koji Sekimizu meanwhile expressed his condolences and sympathy for all those caught up in the *Costa Concordia* tragedy. 'Causes of this accident are still not yet established. We must wait for the casualty investigation and should not pre-judge or speculate at this stage. I would like to urge the Flag State administration to carry out the casualty investigation covering all aspects of this accident and provide the findings to the IMO under the provisions of SOLAS as soon as possible,' he said.

He added that 'The IMO must not take this accident lightly. We should seriously consider the lessons to be learnt and, if necessary, re-examine the regulations on the safety of large passenger ships in the light of the findings of the casualty investigation.'

The Nautical Institute 'noted with extreme disquiet the alacrity with which the ship's owners, Costa Cruises, blamed all on the Master, Captain Francesco Schettino, accusing him of unprofessional conduct before any investigations could have taken place.'

The NI said it was also 'extremely uneasy with the speculation in much of the world's media. Some evidence which should be in the hands of official investigators is being paraded in newspapers and television news programmes. Blatant speculation into the actions of Captain Schettino and others before, during and after the accident is being presented as fact,' it said.

The investigation continues.

Minute-By-Minute Congestion Map Developed



Credit Sheffield Tiger from Flickr Creative Commons

Researchers at Cambridge University's Computer Laboratory are aiming to decrease the congestion in cities by developing ways for low-cost monitoring methods to analyse the flow of traffic.

A new project has shown that by using existing sources of information about traffic flow it is possible to create a minute-by-minute image of congestion in cities.

Britain's roads are getting more and more congested. Motorways and major roads have sensors and information displays but it is too expensive to fully monitor cities.

The TIME project (Transport Information Monitoring Environment) aims to inform businesses, government, and the public so that they can use the roads with less frustration; help transport operators respond to changes while providing a good service; and allow road planning and public policy to be informed by quantitative evidence.

Focusing on the city of Cambridge, the TIME project has 're-purposed' data sources from Cambridge County Council and Stagecoach, incorporating them into a system that can transport, collect, and analyse data.

No extra expense is incurred for information gathering because the infrastructure required to collect the data is already in operation.

To predict which roads are likely to be most congested at which times, researchers collected bus position data because the movement of buses gives a good idea of the traffic conditions in general. The bus data were combined with data from a number of sources of information about the road network, including 'crowd-sourced' data from OpenStreetMap, showing bus lanes, traffic lights and bus stops.

People suspect that traffic is worse during school terms but, until now, there was little hard evidence of this. Using bus positions already collected by Stagecoach and map data from OpenStreetMap, the team was able to demonstrate that bus journeys are longer, and that journey times vary more during term time.

The team was also able to help traffic planners by illustrating the extent of congestion that can be caused by a single incident. Dr David Evans, a researcher on the TIME project said: 'The A14 is a major road for the region and when something goes wrong on it, the effects are felt throughout the city and outlying villages.'

ION Chooses Autonomous Snow Plough Winners



The winners get that rarest of objects - a meaningful Golden Globe.

The Institute of Navigation (ION) Satellite Division held its second annual Autonomous Snow Plow Competition between 26-29 January in Minnesota.

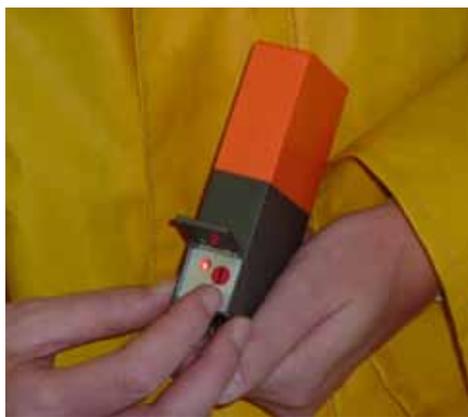
The Competition is a national event open to college and university students, as well as the general public, that challenges teams to design, build, and operate a fully autonomous snow plough using state of the art navigation and control technologies to rapidly, accurately and safely clear a designated path of snow. Six teams participated during this year's four-day competition, each using unique vehicle design approaches. They were judged based on their cumulative scores

earned throughout the competition phases: 75% of the total score was based on the actual ploughing competition; and 25% was based on the presentations and pre-event report. First place this year was awarded to Ohio University students Samantha Craig, Ryan Kollar, Kuangmin Li and Pengfei Duan with support from faculty advisors Frank van Graas, Woulter Pelgrum and Maarten Uijt de Haag. The first place prize included \$3,000 and a golden snow globe trophy.

Second place was awarded to Miami University students Chad Sobota, Mark Carroll, Robert Cole, Mark Stratis, with support from student advisors Steve Taylor, Ryan Wolfarth and Harrison Bourne and faculty advisors Jade Morton, Peter Jamieson and Janet Burge. The second place prize included \$2,000 and a silver snow globe trophy.

Third place was awarded to University of Michigan (Dearborn) students Angelo Bertani, Zach DeGeorge, Mark Lawrence, Doris Kotori, Alf Williams, with support from student advisors Benjamin Craig, Jhonatan Ferrer, and faculty advisor Narasimhamurthi Natarajan. The third place prize included \$1,000 and a bronze snow globe trophy.

Pocket-Sized TRIG Tracks Oil and Gas People



Pocket-sized reassurance for staff in dangerous roles.

Trident Sensors has launched a pocket-sized tracker/responder which uses GPS technology and the Iridium satellite network to provide an emergency lifeline in the extreme environments experienced in the oil and gas industry.

The responder, called TRIG, can continuously track the precise location of isolated workers

anywhere in the world, including oceans, deserts and polar regions. It can also be mounted on vehicles, lifeboats and aircraft etc. The units can be tracked live using mapping software such as Google Maps or other GIS tracking software.

An alert function allows the user to signal for assistance at the touch of a button in the event of an emergency. The user has the reassurance of knowing that a controller has acknowledged the alert when TRIG's LED display changes to blue.

In routine use, the unit can be used to send and receive data and text messages, enabling two-way communication from any location on Earth, no matter how remote or inhospitable. The data can be sent to email addresses, mobile phones, websites or other remote stations.

The Bluetooth-enabled TRIG can link wirelessly to a smartphone, laptop or other Bluetooth device, making it simple to send and receive emails and SMS messages. The linked device can also act as a display and carry out data processing functions if required.

Do It, Driving Monkey!

The popularity of Homer Simpson as a voice for satnav applications has always been something of a mystery – after all, the cartoon father is legendarily bad at...well, most everything he turns his hand to.



Exxxxxxxxxcellent!

But he has proved so popular with drivers that now, TomTom is adding additional Simpsons character voices to its range of satnav apps for the iPhone.

Homer's long-suffering and rather sheep-voiced wife, Marge is now available, offering pearls of wisdom like 'Hmm, it smells a little funky in here, was Homer in this car?' alongside the more usual 'turn right at the next exit.' Perhaps the most likely to be a runaway success though is the voice of evil nuclear plant owner Charles Montgomery Burns (in reality, comic actor Harry Shearer). Fantastically unscrupulous, the megalomaniac billionaire is now available to be the voice of your satnav, peppering instructions with gems like 'Do it, Driving Monkey!' from time to time.

The new voices are available as an in-app download for just £3.49.

UK AIS Testing Service Launched

TÜV SÜD Product Service has launched what it claims is the UK's first Automatic Identification System (AIS) testing service for the marine industry. The new AIS service is reputedly one of just two available worldwide.

The scarcity of testing services has previously led to backlogs and waiting times of up to nine months for AIS equipment. TÜV SÜD says with the opening of the new UK facility, it aims to reduce waiting times to just three months. The service will be available to customers via TÜV SÜD's 45 global locations in Europe, the Americas, Asia, the Middle East and Africa.

Neil Peniket, Chief Operating Officer of SRT, a prominent supplier of AIS technology, said: 'AIS is a sizeable and growing market and requires a responsive and professional service for regulatory approvals testing.'

The availability of product testing facilities offering marine AIS test services has been severely limited, which extends product development lifecycles and delays the emergence of new and improved products to the AIS market. For our business, this isn't acceptable and we need a strong alternative to deliver a flexible and fast service in helping us bring products to market.'

The new testing service will ensure that products are able to communicate with any other AIS equipment and are also compatible with other marine communications and navigation equipment.

Lifejacket Safety Recall



Beware Le Speed Traps!

Driver aids that include details of radar speed traps became technically illegal in France in January.

Vehicle equipment that can detect a radar signal has been banned in France for years - but a new law takes this further by banning any driver aid which simply incorporates data that can give warning of where speed cameras are located.

Fixed radar trap information is, of course, already in the public domain - with popular maps and satnavs giving details of fixed radar positions.

Already, some satnav manufacturers have ceased including speed trap data in new equipment - but for existing equipment users, compliance with the new law will depend on whether they obtain a software update to remove prohibited software.

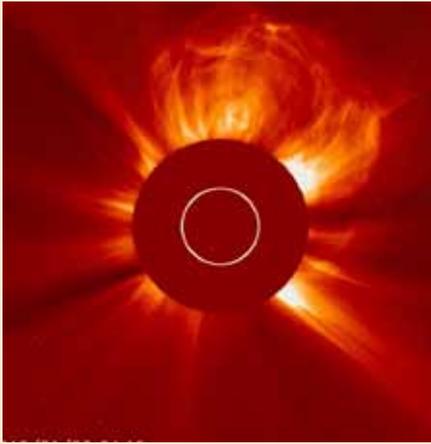
And for the police, enforcing the new law will not be easy, particularly as many vehicles now come with embedded software which the non-technological driver may find difficult to disable.

The penalty for the new offence is steep - a fine of up to €1,500 and the loss of up to six points on a driver's licence.

The new law also incorporates other harsher driving fines:

- using a telephone while driving - fine increased from €35 to €135 and points from two to three.
- watching a movie while driving - fine increased from €135 to €1,500 plus two/three points and equipment confiscated
- straying onto or driving on the hard shoulder of autoroutes - fine increased from €35 to €135.

Solar Storm Disrupts Aviation Navigation



The Sun, shortly after the CME; Credit: ESA

A coronal mass ejection (CME) hit Earth's magnetic field at around 15.00 UTC on 24 January. The ensuing geomagnetic storm resulted in spectacular aurora displays that were visible even down to the latitudes of northern England.

The solar flare was rated as an M9-class eruption - just below an 'X-class' flare, the most powerful type of solar storm.

It was the strongest solar storm to hit Earth since October 2003.

As a rare precaution, some high latitude flights were re-routed to avoid communication problems and exposing passengers and crew to excessive radiation. US airline Delta, for instance, reported 'We're flying further south than we would normally fly.'

There could be some continuing disruption to the likes of GPS and magnetic compasses.

The K-index - a code related to the maximum fluctuations of horizontal components of the Earth's magnetic field - rose above 4; 5 or greater indicate storm-level geomagnetic activity.

For a fuller report on solar weather during December and January, read Page 29 of this issue.

NATS Brings EGNOS To the UK



NATS, the UK's leading air navigation services provider, has overseen the introduction of the first commercial operation based on the European Geostationary Navigation Overlay Service (EGNOS).

EGNOS is a navigation technology that uses satellite positioning to provide an additional layer of accuracy and safety, allowing GPS guidance to be used by aircraft to make runway approaches in low visibility conditions.

EGNOS is owned by the European Commission and operated by the European Satellite Service Provider based in Toulouse

Thanks to funding received from EUROCONTROL and the European Commission, aimed at fostering the growth of EGNOS operations, Guernsey-based airline Aurigny Air Services has upgraded aircraft with new Garmin Avionics.

Aurigny is now authorised to operate passenger flights into Airports that offer EGNOS based procedures as the primary source of guidance.

To support the development and implementation of EGNOS, which can be used across Europe, NATS built a consortium to successfully bid for EUROCONTROL/European Commission funding.

NATS played a critical role in leading the project and interfacing with the European Aviation Safety Agency, The Director of Civil Aviation (Guernsey) and UK CAA aviation regulators, who certified the airfield and Aircraft operations.

NATS also designed the approach procedures and developed the requisite safety assurance material.

Not only does EGNOS improve the regularity of flight services, it also offers reductions in both pilot and controller workload.

'Alderney airport is the first airfield in Europe to use EGNOS to support scheduled passenger services,' said David Pole, NATS Project Manager and GNSS Systems Engineer. 'This will enhance the reliability of Aurigny's recreational, business and lifeline air services to the island, while avoiding the substantial cost of ground-based equipment.'

US Airlines Could Get Aid To Modernise Their Nav Kit

As *Navigation News* went to press, a bill was being finalised in the US Congress that would not only fully fund the Federal Aviation Administration (FAA) till the end of 2016, but would also allow airlines to get federally backed loan guarantees to fund their refits with 21st century navigation equipment.



The NextGen programme is set to revolutionise US commercial aviation in the next few decades, with planes flying to tighter deadlines and four

dimensional trajectories.

However, the cost of refitting planes and air traffic control stations to allow such developments to be implemented has been a source of contention with the programme. Airlines have also been heard to darkly mutter about being left out of the 2009 economic

stimulus package.

The new bill would include around \$3 billion per year for air traffic modernisation.

The idea behind the bill is that the loan guarantee provision would allow the Transportation Department to offer low-interest credit support to carriers for specific upgrades intended to help reduce airport delays and open up more efficient routing. The bill is also expected to get support from the Obama White House.

Final House and Senate votes on the FAA bill are expected by the time *Navigation News* lands on your doorstep.

Schoolgirl Satellite Named

One of the Galileo satellites is to be named after a ten-year-old schoolgirl.

'Adrianna Cyprus' will be named after Adrianna Yiallourou, a pupil at the Ayios Anargyros primary school in Larnaca, who won a national drawing competition depicting her interpretation of space.

National drawing competitions are set to take place in all 27 EU Member States for children aged between eight and ten, in which children are asked to draw a picture that represents space and aeronautics, including stars, rockets, planets, satellites and anything else they can think of that is related to the subject.

Speaking after presenting the award, Communications Minister Efthymios Flourentzos said Adrianna had displayed acuteness in conveying her imagination on the canvas and had successfully used different materials and techniques to accomplish her task.

Adrianna Cyprus will join Natalia and Thijs, satellites bearing the names of the nine-year-old and eleven-year-old winners of the Bulgarian and Belgian drawing competitions respectively.

Olympics Airspace Restrictions



Pic: ODA

As the 'Credit Olympics' start their engines, the Home Office and the Ministry of Defence has announced stringent airspace restrictions to ensure there is no aviation threat to public safety during the Games. As the RIN hosts the briefing for GA pilots on these restrictions on 10 March, **John Gentleman**, Chair of the Institute's General Aviation Navigation Group (GANG), explains how and where to fly this Olympic season.

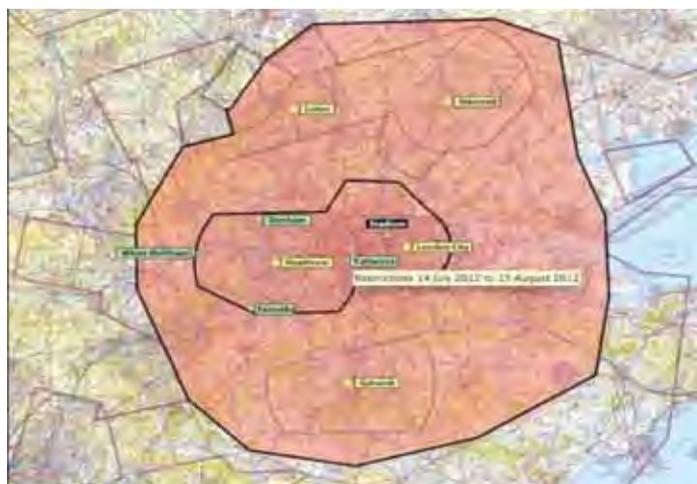
When the UK first bid for the 2012 Olympics, the Government declared that it would ensure measures were put in place to meet its paramount objective to deliver a safe and secure Olympic and Paralympic Games. From an airspace perspective this has resulted in the Home Office and Department for Transport introducing a set of security measures that include airspace restrictions. While the CAA and NATS were involved in the planning, it would appear that the Ministry of Defence and the Home Office were in the driving seat, and their diktat ultimately prevailed!

A vast restricted area stretching from south of Gatwick to north of Luton, west of Farnborough and east of Southend will be imposed on VFR flights during the period of the games. The major restrictions will be centred on London and the Olympic Park and will run from 14 July to 15 August 2012. A smaller set of airspace restrictions will then be put in place for the London 2012 Paralympic Games from 16 August to 12 September 2012. Airspace restrictions around other Games venues, such as football matches, will only be in place for the duration of the event at each venue, in line with those used for other major sporting events. However, the Government has said that extra security restrictions may be placed on flights at any time should the need arise.

The Hot Zone

At the centre of this Restricted Area is a section, called a Prohibited Zone, centred on London and the Olympic Park which will run from 14 July to 15 August. Aircraft will not be allowed within this zone

unless they have undergone crew, passenger and baggage screening with the relevant aviation security programme and are inbound to or outbound from Heathrow, London City, RAF Northolt or Biggin Hill. The existing airfields at White Waltham, Denham, Fair Oaks and London Heliport (all within the Prohibited Zone) will be provided with exemptions to allow both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) operations to and from the restricted zone. All other VFR aviation will be prohibited, with the exception of police,



The Prohibited Zone surrounded by the Restricted Zone for the London Olympics

medical, essential infrastructure services (such as National Rail) and TV broadcast helicopters.

Surrounding the Prohibited Zone is a Restricted Zone. Aircraft will be allowed to enter the Restricted Zone if they can comply with a set of requirements defined by aircraft type. Also airfields within three nautical miles of the outer edge of the Restricted Zone may apply for an exemption to operate and be exempt from the requirements of the Restricted Zone providing aircraft enter and leave the Restricted Zone via an agreed route. Airfield managers will be responsible for ensuring this takes place.



Restricted Areas for the Paralympics 16 Aug – 12 Sep 2012

For the Paralympic Games the Prohibited and Restricted Zones will be replaced by an area of prohibited airspace centred on the Olympic Park and two separate areas of restricted airspace, covering the rowing venue at Eton Dorney and the athletes' village at Egham. These areas of restricted airspace will have the same requirements on access as apply to the Prohibited Zone in place from 14 July to 15 August. A special exemption will be granted to the London Heliport to allow operations as per the Olympic restrictions.

Restrictions will affect many other Olympic sites, including Weymouth in Dorset, Newcastle, Coventry, Glasgow and several stadia elsewhere in the country. A prohibited airspace will be put in place over the Sailing Village at Weymouth. Other locations will be covered by restrictions of a short duration, activated by Notice to Airmen (NOTAM) and limited to 2 hours before the event to 2 hours afterwards.

Capacity Questions

The Home Office has said that every effort will be made to accommodate General Aviation (GA) businesses trying to survive under the restrictions – which fall at the busiest time of the flying year – but it is important to remember that the airspace is not closed for the duration. The main issue facing GA will be one of capacity in the restricted area and while guarantees have been sought that no aircraft that qualifies for entry will be refused access, National Air Traffic Services (NATS) can give no such guarantees. NATS says while it will recruit extra staff and do its best, it has no realistic way of estimating traffic requirements, and cannot guarantee entry and indeed, it is possible that at peak times, access will be denied. GA representatives questioned the Home Office as to why the restricted area had to be so enormous. The Home Office responded that the terrorist threat level for the games was defined as 'severe,' which meant it was highly likely that attacks were being planned. The affected area would be a 'known environment' in which everything would be identified and its size was dictated by the time needed to respond to any incursion. While the Home Office did not go into what that response would be, there has

been loose talk of AWACS, Typhoons and Apaches being involved – it's a time for pilots to brush up on interception procedures!

No Code, No Clearance

To operate in the restricted areas, most aircraft will have to file a VFR flight plan between 24 and 2 hours prior to take-off. (Filing a flight plan is the recognised way of giving formal notice of your intention to fly and it is used to give approval for that flight to take place. It also provides Air Traffic Control (ATC) with a means of plotting and monitoring the flights and means those personnel monitoring the airspace can quickly identify any suspect aircraft). If the flight is approved they will be given an access code, to be quoted on first contact with ATC – no number, no clearance. The contact with ATC must be within plus or minus 30 minutes of the stated time and pilots will have to follow their flight planned route. Radio contact must be maintained, and a secondary radar response code or 'squawk' will be given. Circuits will be allowed at affected airfields without the need for a flight plan, although a transponder will be required. Gliding, hang gliding and paragliding can continue from sites notified to the authorities, as long as aircraft fly no more than 3 NM from the site. Cross-country glider flying can be arranged, but will be treated in the same way as powered aircraft – flight plans must be filed and adhered to, radios and transponders must be carried.

Unknown Demand

NATS has made improvements to its Assisted Flight Plan Exchange – AFPEX, an internet-based flight planning system – to make it easier to use. During the games there will be no opportunity to file a VFR flight plan by fax, by phone, or while airborne. NATS will set up a reception system to process the enormous number of flight plans it expects to get, and staffing requirements for it should be adequate for the task. But a problem is caused by not knowing exactly what that demand will be and there will be a finite capacity, and it could be that at peak times, access to the restricted areas cannot be granted. Access to the restricted areas may be refused at periods of maximum demand; it could be at the flight plan filing stage, or it could be refused on first contact with ATC.



RA(T) centred on Weymouth Bay to include Olympic sailing events and athletes village

NATS has identified the main choke points as firstly, handling the flight plans and secondly, coping with the traffic in the air. The ATC provider for the airspace is called 'Atlas Control.' The Olympics Airspace Management Cell is a DfT-funded, NATS-equipped temporary facility at the ATC centre at Swanwick, and will provide a control service to all aircraft operating in the Restricted Zone, outside of controlled airspace, in order that they can meet the requirements of the Zone. The Control Facility will be manned by 50 RAF Air Traffic Controllers who are qualified in providing an ATSOCAS (Air Traffic

Service Outside Controlled Airspace). They will come from airfields around the UK where they will already hold a controlling endorsement required for such a service. The Flight Plan Reception will be handled by 50 RAF Air Traffic Control assistants who have a background in flight planning, for example from an RAF flying station or squadron flight planning section. Both the flight plan reception and Atlas Control will be manned 24/7 and both areas will have a helpline number to call. However, these numbers cannot be used to file flight plans - all flight plans must be submitted by electronic means. Approval for access into the restricted areas will be granted on a first-come, first-served basis because it was difficult to see how any other system would work.

Education, Education, Education

One key part of ensuring that the airspace changes for London 2012 are known about is the communication and education programme. This has proved to be one of the greatest challenges. The MoD/CAA Airspace and Safety Initiative (ASI) group has undertaken a comprehensive



All the main Olympic venues for 2012.

communications and education programme to help keep airspace users up to date on aviation Olympic news. They have arranged visits and briefings at airfields in and near the restricted airspace. Details may be found on the ASI website at www.airspacesafety.com/olympics. In addition there are a number of other publications that will be coming out shortly: a bespoke half-million scale VFR Chart will be available from 8 March, which is also the date for the new 1:500,000 Southern England & Wales chart, on a basis of buy a standard VFR chart for the area and get the bespoke one free. The Aeronautical Information Publication (AIP) supplements covering the airspace changes should have been distributed on 23 February and Aeronautical Information Circulars (AICs) on more operational matters will appear in May. It is also possible to sign up to receive the updates through the website, on Facebook and Twitter - there are also podcasts available online.

Ambassadorial Duties

The ASI sought 'Olympic airspace ambassadors' to distribute literature and assist with the briefing programme. In response to the AFI request, the RIN's General Aviation Navigation Group (GANG) have gone one step further and arranged a workshop entitled 'Get a gold medal in Olympics planning'. It will be a day of briefings and demonstrations on how to stay safe and legal during the London Olympics. GANG have been joined by the MoD, CAA, NATS, associations and industry in this exhibition and workshop.

It will be held on Saturday 10 March at the Royal Geographical Society in London, and is FREE, to enable as many GA pilots as possible to attend. As well as several vital presentations, there will be exhibitors and the chance to brush up on your Flight Plan filing.

Don't get caught out during the Olympics - attend the briefing and be sure you fly safely during Olympic season!

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