

# 6°degrees

News, Views and Reviews from the  
International Dynamic Positioning Operators Association

**Issue 7: Spring 2011**



**Fakes and Fraud**  
FLOGGING THE LOG

**Ready, Steady, VOTE**  
AWARDS SEASON BECKONS

**What Makes a Good DPO**  
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# WELCOME

TO 6degrees, THE E-JOURNAL FROM IDPOA



Finally Spring has sprung (for us “Northerners”), and that has also brought with it the eagerly awaited new IDPOA membership fees.

As of March 1st, we slashed the cost of joining the Association. Down to just GBP£20/US\$32 for Members and GBP£40/US\$65 for Fellows. Professionalism has never been more affordable.

The reasons for this are obvious, and naturally include the need to increase membership. More than that though, it is about reaching out and engaging with the DP community. We have experienced very positive growth in the two years since our launch, but sometimes a slow burn isn't quite enough.

We always wanted IDPOA to be different...and like our star in the logo we want to be bright, bold and to stand-out. We don't follow the lead of others, we make our own path – and with the likes of LinkedIn, Facebook and social networks biting hard into the very existence of professional bodies, we felt it right to rethink what we do and how.

We are all about finding new ways to push the association forward, and of engaging with individual DPOs...the clear message was that price was in an issue, the even clearer result is our new pricing. See, we listen and we respond. IDPOA is flexible and recognises the need to innovate and to take chances. With total membership numbers now over 3000 we hope that this new fee structure will get a natural progression of upgrading to develop.

It is all about you, our members, but also about our wider services too. This is all part of our new drive to encourage members to use the services and tools which are part of the package.

We have career development areas, ways in which to upload documents and certificates, we also have our AIMS system, which is an anonymous means of reporting accidents and incidents. We also continue to engage with industry to represent the views of DPOs.

Take the time to look around the site – you may be surprised how much is there for you, and the barriers to joining are falling.

All the best,

Steven Jones  
Executive Director

## IN THIS ISSUE

This issue we bring you the views of some of the most experienced DP people in the business. Captains Marc Bragg and Valerio De Rossi – look at their experiences of new ships and old problems (respectively). While Mark Pointon of the Nautical Institute puts down his rule book and gets real. Sharing with us his thoughts on what makes a good DPO.

We also discuss the hugely concerning issues of fraud and faked seetime. With it getting harder to get seetime, and with people increasingly unwilling to do what it actually takes – there are ever more trainee DPOs simply flogging their logs. However, as we will see it's not just those new to DP – some old hands are prone to a little creative time accountancy too.

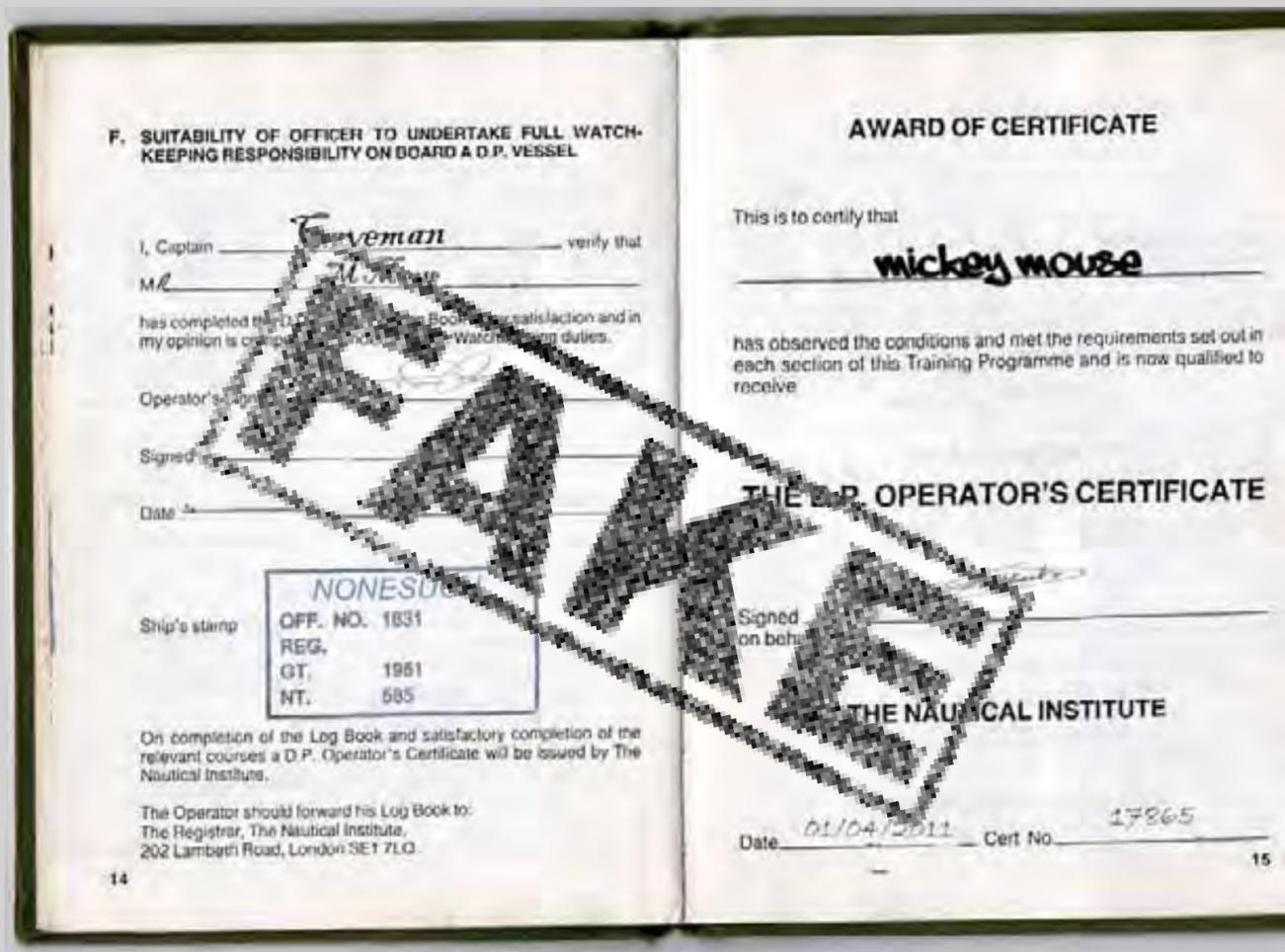
It isn't just about whether people are good, bad or indifferent – we also look at some issues affecting DP systems. We are all increasingly dependent upon GPS – but what happens if something goes wrong? Well, with a combination of sun spot activity and terrorists and pirates looking to jam or spoof signals, it could be a good idea to find some alternatives. Thankfully the experts are on hand to assist – with some guidance from Dr Martin Thomas of the Royal Academy of Engineering and Joel Gillet, of the Texas based, IPOZ Systems LLC.

Those of you who know IDPOA well, will recognise that we like to support students and trainees, whether in college, university or aboard ship. When we saw that one student was in the process of gathering input on capability plots – we knew that we had to help out. You can read the results from Sam Ayres' excellent study inside.

In addition to all that we have the latest positions on the industry's leading DP Jobs Board, as well as news from the wonderful world of DP, and a guide to what is going on in the industry in the coming months – especially exciting as we look forward to the 3rd European DP Conference in London, and we are proud supporters of the 1st Asian DP Conference in Singapore.

To find out more, to join or upgrade your membership visit [www.dpoperators.org](http://www.dpoperators.org)





# FAKES, LIES AND FRAUDULENT SEATIME

## THE FAKERS BREAKING THE SYSTEM

The serious issues of faked certificates and experience have been to the fore recently. The Indian aviation industry has been rocked by the issuance of fake pilot licenses, with around 40 flying schools implicated. While such large scale fraud is perhaps rare, it is not just aircraft that are being controlled by captains and officers with faked credentials. It happens in shipping too, and sadly even in the rarefied world of Dynamic Positioning (DP).

This made us think of the effect those faking it have on the safety and reputation of DP.

The Nautical Institute kindly contacted us recently to keep us abreast of developments in a couple of cases of brazen ticket fraud. Trainees claiming faked time, with forged signatures and spurious seatime.

We were very pleased to see that action is being taken. There has long been an impression that either the system was not robust enough to deal with such threats, or that the will does not exist to really clamp down on the problem. Accusations of an "ostrich" approach to managing the situation have been voiced. With others believing that the capacity to adequately investigate and then respond was simply not in place.

The fact that we are now seeing action – albeit on a small level does at least give confidence that not all the accusations are based in fact. Without going too deeply into sensitive information, the facts of the two cases in question involve either forged signatures adding time to a trip when it wasn't earned, or completely manufactured seatime.

There are other cases which haven't got to this stage yet – the mythical DP logbooks which spend more time at sea than their owners, will surely get their moment in the spotlight before too long.

We wrote back to the NI to thank them for their consideration in keeping us in the loop. It's so important that all parts of the industry chain are aware of not just what is going on, but what is being done about it. While we applauded their action – we think that a more formal, recognised system is developed to deal with fakers and frauds. Suspension of a certificate is a sanction, so too is making someone go back and get "proper" seatime. But is it a firm enough a stance? What do you think? Can a leopard change its spots – or will a faker simply be more careful next time?

We simply don't know.

There is much to be done to ensure that the professional community closes ranks against these practices. However we believe that such matters shouldn't simply rest with a metaphorical rap on the knuckles and a "please apply again" with proper seatime, it seems that additional sanctions should perhaps be imposed on those who try to gain by cheating the system.

While there are those who may well find they have acted in a fraudulent

way through ignorance or in error - there are, we believe, an increasing number acting maliciously (anecdotal evidence seems to indicate that such practices are indeed on the rise).

As the "currency" of the DP Operators Certificate gains increasing market value, perhaps there is a danger of such problems growing further. It seems the practice of "adding" a few weeks DP time here and there has been on the rise - and we all need to

work closely to ensure that it is crystal clear that such conduct amounts to fraud, and is not acceptable.

We should remember that DPOs who gain their certificates without the requisite seatime pose a real danger to the safety of life at sea and the environment, while pulling the reputation of the profession and qualification down. So we look forward to supporting any efforts to stamp down hard on any further cases of fraud.

**We put the matter up for debate through our LinkedIn group and received some interesting feedback. The message being received loud and clear that the problem isn't limited to just trainees, there are many fully fledged DPO's playing fast and loose with their hours.**

Mike Stuck wrote to remind us that trainees are (normally) well supervised and their DP hours are well scrutinised and documented. In fact he thought the system for training was working well, only a few times having to scratch his head and say, "is this guy for real?" Usually he thinks that the real bad trainees are so bad, and their weaknesses so blatant and obvious that the miscreant quickly either own up or show their inadequacy. It is when they become fully fledged DPO's that the hours should be questioned.

With many trainees moving off from the original employer in their first couple of years it seems there are real financial drivers behind the perpetration of documentary fraud. With DPOs all too often seduced into chasing the increased day-rates available to 'agency DPO's'. Once they have been through two or three other vessels, as one trip day-rate DPO's the hours suddenly jump exponentially. The system and the way payments are structured seem to be fuelling the fraudulent fire.

According to Mike, they either log a full days "hours" every day of their time onboard - a practice which not many people disagree with - even though the vessel may only have been on DP for 50 to 60% of that time, or they leave the hours section blank, as part of the last minute "pay-off" rush to get documents signed. In the comfort of their own home they suddenly convert a 300 hours voyage into something over 400, or one case I did see was a figure which equated to the DPO calculating 24hrs per day for his whole tour.

There are people Mike has trained within the last 10 years, quoting 25000 to 30000 DP hours as part of their profile - as many hours as I have gained during 25 years of DP operations! Clearly something is wrong.

Mike again, "There is no authority overseeing the flagrant abuse of the system. Some agencies are happy to use whatever figure the DPO provides, without question, as it increases their marketability. Some parent companies have to take responsibility too - as they installed DP systems into their fleets they wanted their DPO's to look up to scratch on the vessel/company QC so that clients would readily charter their vessels".

While there are systems and control in place, the truth remains that this industry relies on honesty and integrity. An operator who is willing to flagrantly fake hours/experience must have to have his honesty put into question when involved in a DP incident too.

Captain Bob Pearcey backs up these thoughts and even goes further. He suggests that some DPOs with full DP certificates have little or no time working on a DP system. He believes that some owners are hiring based on price and availability, and do not pay enough attention to experience and credentials.

As a client rep Bob has had to ask that certain DPOs do not come back to vessels unless as a trainee. He is a firm believer, as we all are, that DP time should be on the desk, not time simply onboard a DP ship.

Richard Lawrence – agrees that the problems of fakery are all too real and prevalent, "Yesterday I couldn't spell DPO, now I ARE one." he half jokes after people he knows who had little or no DP experience last Christmas all of a sudden pop up with an unlimited DP Certificate and many thousands of hours logged already. The issue is real, and despite isolated instances of suspended certificates we are not getting even close to fixing it.

**We would like to hear your thoughts – are we awash with fakers, and if so what can be done? Email [dpo@dpooperators.org](mailto:dpo@dpooperators.org) to share your thoughts, or check out our LinkedIn group**

# FROM THE DESK...



Captain C. Marc Bragg joins us once again, "From the desk".

Here's hoping that everyone is gainfully employed and still enjoying the job. Many of us have done our share of "day-rating" and working the "Ad Hoc" employment scene throughout the industry. Along with this comes an understanding of many of the jobs and operations that we all may be engaged in when onboard operations are varied from vessel to vessel.

This can be a very important exposure and experience. DP vessel operations are different from the mainstream – and as such, so too are the onboard management and procedures.

Pretty much everyone who acquires a DP certificate has a basic understanding of how things operate (there are sadly exceptions to, but as time goes on we all pick up on the many "different" ways of how DP operations are handled.

I remember one unit I was on as a SDPO, the operator stood a 6-hour watch on the desk (straight) and then was required to go on deck and do the LSA weekly and monthly checks, after a half hour meal break. During this time when the DPO was absent, the Medic or Radio operator sat at the desk, "to monitor" the situation. IF anything "looked" like it was developing into a problem, they were to call the DPO back to the desk to straighten matters out, and then return to the safety appliances checks.

This just did not seem right to me. When I asked about this practice, I was told by senior management onboard that we as "responsible ships officers" had to do the marine stuff because we were certified and that safety was the company's main priority!! So we can see there have been bad and misguided practices out there for years.

It is our responsibility to look towards coaching and training to maintain a level of expertise that reflects genuine safe practice. This means that we should all

be involved in furthering our knowledge. We need to keep on learning, through incident reports, articles from manufacturers and recommendations and guidance from various groups and associations, such as IDPOA and The Nautical Institute.

There is a wealth of information available and we can all learn through others' mistakes so that we do not make them ourselves. Every accident, incident and problem is a learning opportunity.

This need to continually improve and develop has seen a groundswell of interest in further onboard evaluations and guidance, which can help to ensure that shipboard management operate consistently above the standard level of procedures. It was once said, "learn from others mistakes, because you won't live long enough to make them all yourself".

It is clear that we have to enhance education and training. Further onboard evaluations and guidance are necessary and can make a real difference. "Bridge Resource Management" has made a real difference for mainstream bridge teams, and we should start to look at this training to move up a notch to include the DP Bridge team and specific duties in a new improved holistic view of operations, management, systems and people.

Take for example the procedures for emergencies when in DP both engine room and bridge. On vessels with doubled up crew to reflect the DP operations, many companies and

in-house procedures do not address, where do all of these people go in the case of an emergency, or certain operations or in severe weather, etc.

There is a reality gap developing and companies and their procedures need to evolve to fully encompass many of the aspects of a running DP operation, in a "Safe and Known" condition.

This is not about trying to re-invent the wheel, but as a Master I genuinely believe that re-training, coaching and evaluation of ships operating crew for their ongoing DP duties is the way forward to ensure that we are safer and also "know" what we are doing at all times.

I have picked up bad habits along the way (we all do), and I have recognised the need to correct these over the years. It is only then when I go back to basics and re-evaluate my knowledge and skills, that I realise the positives which come from revisiting and rethinking the DP process. The re-learning processes ensure that we do things in a safer way – a small investment which makes it all worthwhile. Believe me.

So take some time, pick up that manual and figure things out – learn from others, be open and honest about your own weaknesses and address them.

Let's all make sure we continue on and do just a little extra to make sure we all know our ship, gear and responsibilities to the very best of our abilities. It is our industry so let's show we know the right way to do it.

# The **2011** International Dynamic Positioning Excellence Awards



# Ready, Steady VOTE

The categories for the 2011 International DP Excellence Awards will be as follows:

- **DP Operator of the Year**
  - **DP Vessel of the Year**
- **DP Manufacturer of the Year**
- **DP Training Centre of the Year**
  - **DP Lecturer of the Year**
  - **DP Employer of the Year**
  - **DP Mentor of the Year**
  - **Services to DP Award**

The nominations process will be launched in late April for a month. So you will have the chance to tell us who you think should be chosen.

Keep an eye on [www.dpoperators.org](http://www.dpoperators.org) so you don't miss the launch. Nominations will run for a month - and then the voting will commence.

Last year the voting went through the roof in various categories - with the Lecturer of the Year and Training Centre of the Year being incredibly close and tightly fought.

Just to remind you of the 2010 winners...this year your name could be added to the roll of honour!

DP Operator of the Year - **Nick Wallace**

Onboard Trainer/Mentor of the Year - **C. Marc Bragg**

Leader of the Year - **Charlie Stuart**

Training Centre of the Year - **Maritime Institute Willem Barentsz**

Lecturer of the Year - **Helge Samuelson**

Innovation of the Year - **Converteam, D-AFE**

DP Vessel of the Year - **Seajacks Kraken**

Investor in People Award - **ADPS Ltd**

Services to DP Award - **Ian Smith**

Manufacturer of the Year - **Kongsberg**

Special Recognition Award - **Mystic Viking,**

**Captain Lars Whelan and the officers and crew**



2010 Lecturer of the Year  
**Helge Samuelson**



2010 Training Centre of the Year  
**Maritime Institute Willem Barentsz**



2010 Leader of the Year  
**Charlie Stuart**

# IDPOA JOBS BOARD

At IDPOA we work hard to bring you the latest DP job opportunities from across the world. We actively engage directly with employers and careers agencies to find permanent vacancies and contract roles at all levels on the DP career ladder.

You can use your membership of IDPOA in order to access and apply for all the jobs we advertise, upload CV's and give recruiters direct access to their careers information in the jobs section of the IDPOA website.

We are working hard to become the only industry jobs board worth visiting. So keep watching as the jobs grow and grow.

The 'Get a Job' listing in our careers section brings you the latest vacancies we find online and is open to all. Here we give you a flavour of current vacancies, find more DP jobs at [www.dpoperators.org](http://www.dpoperators.org)

**If you have DP positions to fill...** Email us to find out more about promotional opportunities: [marketing@dpoperators.org](mailto:marketing@dpoperators.org)



Experienced DPO urgently required for a 5th Gen DP3 Class Ultra Deepwater Drillship.

Candidates MUST have a GMDSS, Full DP Cert, Valid Medical, Survival and HUET as well as exp on a similar drilling unit.

Contact [samuelligins@eximiustechnical.com](mailto:samuelligins@eximiustechnical.com)



Anglo-Eastern Crew Management specialise in the supply of Crew to the Offshore Oil and Gas Industry.

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[www.angloeasterngroup.com](http://www.angloeasterngroup.com)

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A leading international Oil & Gas Operator requires a DP Specialist in Houston.

ExpatsDirect

The successful candidate will act as an in-house DP expert NOT a DP Operator.

Must have experience with conceptual design and will be required to oversee EPC contractor design.

Design (conceptual), Analysis, Testing, Layouts and configuration experience is essential

Experience with Failure Modes & Effects Analysis (FMEA) + ACCE and engineering/construction of dynamic positioning systems in ships is also required.

Retrofit installation of DP systems experience is preferred



J. Lauritzen A/s  
Shipowners

Lauritzen Offshore Services seeks competent and qualified deck officers and electricians for service onboard newbuild DP II Shuttle Tankers scheduled for delivery June and December 2011.

DPOs must hold a certificate of competence for vessels over 3,000 GT (STCW II/2) and DP Advanced or Unlimited certificate and have previous seagoing DP experience. Electricians must have previous experience within DP systems.

[www.j-lauritzen.com](http://www.j-lauritzen.com)

Jurnieks.com  
Maritime, Oil & Gas Job Board



## REMEMBER:

- If you want to apply for a role advertised on our website please follow the links to the relevant recruiter website on the advert to apply.
- Please do not send applications to IDPOA as unfortunately we cannot forward these on to employers or respond to individual applications.

# Dynamic Positioning News

**CONVERTEAM**  
THE POWER CONVERSION COMPANY

GE Energy is to acquire approximately 90% of French electrification and automation equipment firm Converteam for approximately \$3.2 billion.

The transaction, endorsed by Converteam's management team and employee representative groups, is expected to close during third quarter 2011, and leaves a 10% stake in the hands of Converteam's senior management.

Pan Arab E-Navigation is proud to become the first Arabian DP training centre.

Administered by professional Arabian staff and accredited by the Nautical Institute, the new centre provides trainees with state of the art equipment in a professional environment.

Pan Arab E-Navigation services include:

- DP operator courses
- DP maintenance course
- DP related incidents investigation
- DP consultancy services

[www.pa-en.com](http://www.pa-en.com)

**PAN ARAB  
E-NAVIGATION**  
DP TRAINING CENTER



DNV has been looking to the future in their "Technology Outlook 2020" report. Inside they highlight technologies that could have great impact in the maritime and energy sectors.

"We will see concepts with modified hull forms, using air bubble lubrication, air cavity systems, and new types of surface materials and maybe ballast free ships," said Ms Harstad.

"Hybrid propulsion...might also be a reality in commercial shipping in 2020, in particular for ships with variable power demands," she added.



We took the opportunity to speak to Mark Pointon, MNI, IDPO of the Nautical Institute – he told of the developments within the training and certification, and of the push to respond to the needs of trainees, the demands of industry, and of their global accredited DP training providers. We asked him what he thought made a good DPO and in his own words he told us.

# What makes a good DPO?

their finger tips when a problem occurred. This practice was backed up with an ongoing “what if this happens” thought process.

“Isn’t that a form of consequence analysis”, I hear you cry, and my reply would be, “yes and no”. Yes it is a consequence analysis, but no because it is not limited to the narrow parameters of the DP system.

Given that this is necessary attribute, how can such principles be taught to aspiring DP operators? Well firstly this is about applying principles rather than implanting the knowledge, which underlines that this would be in addition to the established curriculum of the Nautical Institute DP operators training scheme aims and objectives.

An example of where I have seen it introduced to trainees was on the Advanced / simulator course and it was very well received. The students practiced it during the rest of the course, enhancing their learning experience and then perfected the practice during their supervised watch keeping period.

The principle being introduced at an early stage and reinforced “on the job” leads to them reaching the standard that is a “good” DPO. Here is an example transcript of what the instructor said to the students in the debrief of an exercise that was successfully completed.

Having highlighted the positives of the exercise the conversation went something like this...

“Ok - so given that you successfully coped with the problems that were presented, how do you think that you could ensure that you achieved the same results every exercise”?

Text book question, good technique, open question, let the students give a considered answer.....Result, (not unusual) Silence.

Prompting the trainees to observe the DP desk screens, which were duplicated and hadn’t changed for some time, the instructor continued.

“How many screen view combinations are their available to you and how many are you currently using”? The answer was 6 with 4 duplicated!

“When did you last change the combination? What information are you generally displaying, how often do you scroll through the pages?”

He went on to explain the methodology described earlier to underline why, consequence analysis was a useful tool, but was one that ultimately was a tool of last resort and one that should be used by a “good” DPO to confirm what he had already ascertained, rather than a tool which actioned an ill considered response.

This highlighted the thinking and drivers behind being or becoming the highest quality DPO. Shedding some light on the old school “magical” effect of always keeping the person ahead of the technology - using the “sixth sense” gained through experience to pre-empt and react...

In conclusion, once this approach is understood and put into practice a change can be seen in the performance of the trainees. Looking at the bigger picture, the application of this single attribute is in my opinion, the single most important lesson to be learnt. Without it, all the technical knowledge gained remains just that, knowledge, and knowledge which is not applied very soon becomes forgotten.

In these days of increasingly sophisticated DP systems, where the apparent role of the DPO is steadily decreased, the question arises, what are the attributes needed to be a good DPO and how do we train prospective operators to reach this level?

To address this we can look at a number of different areas.

A group of people when asked what the attributes are would likely come up with a very similar list. But when asked what the single most important attribute was, the answers would vary.

In my opinion, having worked as an operator, instructor and certification administrator, the answer lies in what the role of the DP operator is within the “DP System”.

The role of the DP Operator is to monitor the performance of the DP system and to make appropriate decisions in conjunction with other factors in order to maintain the vessel in a safe condition relevant to the vessels operational situation.

I increasingly hear, “we have consequence analysis and

power management systems so an engineer or electrotech is an appropriate person to sit at the DP desk.” In the narrow terms of technical know how I wouldn’t disagree, but and it is a big but. In order to make appropriate decisions, the operator has to have to hand as much information as possible. This information may come from the DP system itself or it may come from other sources, such a looking out of the window to see a squall approaching or to see the wave and swell pattern developing.

In addition, the operator has to know what the operating boundaries are for the operation and equally importantly, what his and the vessels capabilities are in the event of having to abort and manoeuvre manually.

However, I digress. In order to make the decisions, modern DPO’s rely too much on the system to warn them of problems. Whereas the older generation, out of necessity, continually monitored the whole system in order to observe trends and potential problems.

This was not just an exercise in boredom control, it was a mechanism to ensure that they had as much information at



# DP ASSURANCE



Captain  
Valerio  
De Rossi

MSc, AFNI, MCMI, fDPO

During my career I have been lucky enough to take command of two magnificent new build Dynamic Positioning Drillships, both built in South Korea. I followed their constructions in two different shipyards, and I was unquestionably amazed by the professionalisms of the Korean shipbuilders, especially with regards to the quality control. Both ships were very large, over 100,000 tons of displacement for a length overall of 228 metres one and 238 metres the other.

The hull design was similar, both had three separate engine rooms equipped with two main diesel generator of 7,000 KW each, for a total impressive power of 42,000 KW. Both ships had six azimuthally variable speed thrusters, the former of 5,500 Kw each, and the latter slightly smaller, 4,500 Kw each.

Having three separate engine rooms is the latest conceptual design in drillship technology; this segregation makes the ship triple redundant and therefore virtually impossible to black out completely. Each engine room is in fact independent and its two diesel generators feed two thrusters, so a partial black out would only stop two generators and two thrusters, leaving the other four running with a minimum impact on the ship's station keeping capability. Both vessels were equipped with DGPS's and hydro-acoustic position reference systems.

After the ships delivery, an extensive commissioning programme was carried out, along with system integration tests, to ensure that the different, highly sophisticated parts of the ship were working together in an efficient manner.

I was especially involved in the marine side of it, with particular emphasis to the DP assurance. What is meant by DP assurance? It is the process needed to ensure that the vessel is compliant with Dynamic Positioning class rules, existing standards, guidelines and best industry practices. Knowledgeable DP practitioners execute this process; specialised companies offer this service on behalf of the owner

or the shipbuilder. The methodology is based on a thorough review of the DP documentation with special attention to the management of risks. A preliminary failure mode and effective analysis (FMEA) is developed and reviewed in details identifying the system worst-case single point failure. This passage is extremely important, as the FMEA primary objective is to identify any failure that may lead to a total loss of position information, loss of power generation or loss of thrust. Each machinery system directly or indirectly involved with the DP system is identified, analysed and then tested during the trials.

The failures earlier mentioned may have an impact to the station keeping capability with the consequences of a stop in the operations, with also the risk of an environmental impact if the vessel is in contact with hydrocarbon. It must be bore in mind that the latest generation MODU's are chartered worldwide to the oil majors for day rates of over 500,000 USD therefore in the event of an unplanned halt of the drilling operations for any unforeseen reason, such as DP equipment failure, the charterer will be accountable for a commercial penalty commensurate to the lost time.

As the owner's representative, our team witnessed the various systems' tests during the FMEA proving DP trials. The DP system interfaces with 3rd party subsea equipment and hydro-acoustic system were checked, along with their performance. DP manoeuvring and station keeping capabilities were tested also. Comprehensive marine and DP manuals were developed, as well as specific operations guidelines, such us watch-keeping checklists, emergency procedures, on board training, on board organization and manning, dynamic positioning operators' competency and required shore based training matrix.

To summarise, DP assurance is a synergic effort by different parties made to ensure that the drillship was operationally ready and most importantly fit to carry out the drilling operation, efficiently and safely.

EUROPEAN

# DYNAMIC POSITIONING

CONFERENCE

**8-9 June  
London**

Now in its third year, the European Dynamic Positioning Conference was established in response to demand for a dedicated international event focusing on DP in the offshore market and other sectors.

Building on the success of the first conference in 2009, the following year a second day was added to accommodate broader coverage, more information gathering, additional networking time and practical DP demonstrations. The 2011 conference is held in association with The Dynamic Positioning Centre.

Established as an annual event not to be missed by anybody involved with DP, this conference updates developments in legislation, rules and guidance as well as technological advances. New for 2011 is a session dedicated to roundtable discussions on 'the competence cycle'.

2011 marks the 50th anniversary of the first deployment of DP in Eureka, and the conference will put DP's sporadic development since then into context.

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# DYNAMIC POSITIONING ASIA CONFERENCE & EXHIBITION

Organised by:



## DP ASIA 2011

21 – 22 June 2011, Singapore

*“Dynamic Positioning  
– The Future Outlook”*

Supported by:



The 1<sup>st</sup> Dynamic Positioning Asia Conference & Exhibition will be held in Singapore. In the last decade, DP has seen extensive use in various types of OSVs and rigs in the Asian marine & offshore industry. This international conference and exhibition is timely to address key issues for this unique feature in OSVs and rigs for owners, operators, shipyards, designers, DP equipment manufacturers and service companies, classifications societies, consultants, drilling and installation contractors and service providers in technology development and operation of DP systems in the marine and offshore industry.



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CEng Eurlng CMarTech CMarEng  
FRINA MSNAME FIMarEST FIEB MIES FSNAMEs  
Director, Newcastle University Marine International-Singapore  
**Chairman, Technical Committee**

This dedicated DP conference has generated enormous enthusiasm among various parties involved in presenting technical papers, panel discussions and the exchange of knowledge and technical know-how, as well as in exhibiting products, and finally benefiting from wonderful networking sessions. The technical committee invites you to benefit from this landmark event which will cover the following topics:

- DP Design Development
- Rules and Regulations
- DP Sensors and Control
- Safety and Risk
- Power Management System (PMS)
- Vessel Management System (VMS)
- Reliability, Uncertainty and FMEA
- Simultaneous Operations and Procedures
- Arctic Operations
- Thruster Technology and Configurations
- Use and Application of DP in OSVs and Rigs
- New Technological Development – Future DP!

The inaugural conference has garnered an influx of technical papers. Amongst others, delegates can look forward to presentations by vaunted speakers from **C-Mar, Keppel Offshore & Marine, ABB, M3 Marine Expertise Pte Ltd, Ezra Holdings, Newcastle University Marine International – Singapore and Bangladesh University of Engineering and Technology**. Do not miss this opportunity to hear from the cream of the DP sector.

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# IF YOU LOVE DP

We wish we could buy "I LOVE DP" stickers, they said. Ooh if only we could get hold of some t-shirts, a hoodie. How about a keyring?

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# Jamming and Spoofing

## The GPS Battleground

A study has revealed that a growing overdependence on satellite navigation could have catastrophic effects on shipping.

Global Positioning System (GPS) has become such a big part of our operations, that we are becoming dangerously dependent on the technology, according to a report from the Royal Academy of Engineering.

As we are all (hopefully) aware - GPS uses signals from satellites to provide precise timing and location details, but those signals are vulnerable to disruption with potentially devastating results.

Since the signals received by GPS systems are very weak – the equivalent to receiving the light from a bright bulb at a distance of 20,000km – they are open to interference or corruption, either from phenomena such as sun spot activity or malfunctioning TV aerials, to purposeful disruption using jamming broadcasts. Although jammers can be bought legally for as little as £20 online, it is illegal to use them in the UK and in UK Waters.

Dr Martyn Thomas, who chaired the group behind the report, said, “We’re not saying that the sky is about to fall in; we’re not saying there’s a calamity around the corner. What we’re saying is that there is a growing interdependence between systems that people think are backing each other up. And it might well be that if a number of these systems fail simultaneously, it will cause commercial damage or just conceivably loss of life. This is wholly avoidable.”

The report investigated the effects of commercially available GPS jamming systems on marine navigation by sailing the Northern Lighthouse Board vessels “NLV Pole Star” through a patch of sea blanketed by the jamming signal.

This caused the Pole Star’s GPS receivers, automatic identification system transponder, dynamic positioning system and gyro calibration mechanism to fail. Each of these systems was in some way controlled by or dependent on GPS.

“What was interesting about the Pole Star, which took place off

Flamborough Head, was the range of results that we got,” said Richard Ploszek, the Royal Academy of Engineering’s senior policy manager responsible for compiling the report.

“Some of the readings were quite obviously erroneous, such as placing the ship doing 100 knots above the North York moors, and the GPS software was rejecting those out of hand. But there were others falling into what we would class as the “dangerously misleading category”, five metres here or there for example”. Such errors would be enough to put you on a rig for instance.

The report had a number of conclusions which could perhaps be useful for mainstream activities such as, “the ability of a vessel’s crew to quickly revert to traditional means of navigation and also the extent to which they are able to navigate with these means”. “Given the greater reliance on satellite navigation, in particular GPS, these skills are not being used daily and are no longer second nature.”

According to Ploszek, “The problem would be at its worst in a crowded shipping lane with a lot of boats relying on their GPS. Imagine what could happen in the English Channel on a foggy day.”

While the report is of real interest and concern, are we aware of the implications of over reliance in our own specialist areas? Cracking out the sextant may be ok on a bulk carrier with lots of sea room and time– but not a lot of use in DP operations.



# CAN WE FUNCTION WITHOUT GPS?

**In light of the Royal Academy of Engineering study we put the above question to Joel Gillet, VP. IPOZ Systems LLC. of Texas. Industries and societies tend to grab onto technology that is fast, "simple" and which changes the way in which we live our lives, travel and trade....so...**

So, can we function without GPS? Well close your eyes for a moment and just try to imagine your life without GPS.

For most people, that would simply mean not being able to lookup the nearest Starbucks on their smart phone, but for DPOs it could be a bit more problematic.

DP vessels automatically hold station on a theoretical point in the ocean blue thanks to computers and Position Measuring Equipment (PME), the most common of them being GPS.

Now what would happen if today (or tomorrow), the GPS satellite signal was turned off from one second to the next? GPS instruments onboard giving you no position at all (or worse: wrong positions), all at once (there can be 2 or 3 receivers on a DP vessel), and that would include other non-GPS satellite systems such as the Russian Glonass, the European Galileo ... you name it.

But could this actually happen? Unfortunately, the answer is yes. Satellite positioning is based on radio signal transmissions like the 1575.42 MHz and 1227.60 MHz frequencies of GPS, at very low power due to satellite energy limitations. These signals can be affected by natural or man-made interferences.

## NATURAL ENEMIES.

The relatively weak GPS signal must travel a very long distance from the satellites (20,000km away) and its path crosses various layers of the Earth atmosphere before reaching your receiver antenna.

It just happens that the Sun goes through cycles of high activity followed by quieter, well documented periods of roughly 11 years.

When the Sun is active, it has stronger flares that create two different problems for GPS transmission: Radio bursts in the same frequency as GPS and other satellite systems that will overwhelm the signal with natural noise, and Coronal Mass Ejections that will travel through space and when reaching Earth will affect the physical characteristics of our ionosphere (outer layer of the atmosphere) in a phenomenon known as "scintillation".

Scintillation is a greater problem in the tropics where it is stronger and where the Sun has more impact.

Around the peak of solar activity (in the current solar cycle, that would be between now and 2013), GPS can be affected either by interruptions of signal on several satellites lasting from a few seconds to a few minutes, or by complete loss of position of several minutes. That loss of position would affect all satellite positioning systems onboard the vessel at the same time and without warning, and it could last long enough to make the vessel lose position when there is no alternative PME.

## MAN-MADE PROBLEMS.

As if the Sun was not bad enough, human beings are very capable of affecting the GPS signal on their own. After all, all you need is to build a Radio transmitter that will work in the same frequencies (how to build one was described in depth in the online magazine Phrack in 2002). During the cold war many communist countries had programs to build GPS jammers to protect themselves from GPS guided American missiles. During the Iraq wars many Russian made GPS jammers had to be destroyed by the allies.

After the fall of the Berlin wall you would perhaps have thought the need for GPS jammers would have disappeared? But the great success of GPS and the way it has crawled into every aspect of our lives means there are those that would like to interfere today. Even ATM and other electronic transactions are controlled by GPS across the globe today. Many trucking companies for example are keeping track of their vehicles via GPS systems. They monitor speed, locations and duration of stops and deliveries in order to optimize profitability... Some toll road fees in the USA are charged based on transit information from some GPS capable equipment.

So before you know it, there is a market on the internet for GPS scramblers, for the same reason that there is a market for speed Radar detectors. The cheapest come from China. Anyone can order them online for the price of a meal at your favourite restaurant.

It is now documented that when GPS systems at airport or other locations fail

for a few minutes, it is most likely due to the passage of an 18 wheeler with a scrambler onboard.

But there is more. Electronic geniuses are now building GPS spoofers. What these instruments do, instead of knocking off GPS, is simulate the GPS signal that you would receive if you were at a different location. Now that would be cute for a DP system that has been instructed to stay within 3m of its current work location: it would start navigating full speed in direction of where its computer now thinks it should be, all thrusters on...

## OFFSHORE SCENARIOS.

Now you probably feel quite relaxed and confident that no GPS scrambler will appear offshore of your coastline. After all what would be its use? And you are possibly right, in particular if there are no pirates, guerrillas, drug traffickers or terrorists in your area.

On the other end if you are –say– offshore Nigeria and a local group wants to ransom your company, all they have to do to show they "mean business" is to place a scrambler in one of the fishing boats that are floating around your DP vessel, turn it on and let you see what happens...

## SOLUTIONS.

So what are the solutions for DPO? For one thing make sure you are not holding station on GPS alone. You do not have redundancy if you have 2 or 3 different GPS systems onboard (they would simply all fail at the same time).

Have a secondary acoustic (USBL or similar) positioning system. Importantly have at least one Inertial Navigation System at the core of your DP, and connect it to acoustic only so they remain independent of the vagaries of the satellites, together they would be your best backup plan when satellite positioning quits on you unexpectedly.

There are also serious talks by some governments to revive the coastal radio-positioning system LORAN that was just abandoned in the USA in 2010. They even propose a better version named eLORAN.

I think it should be considered by any Nation having Oil and Gas Fields and therefore DP vessels in their waters, and it should be implemented rapidly, the cost for each nation is estimated to be less than launching one GPS satellite into space.

## SO THERE...

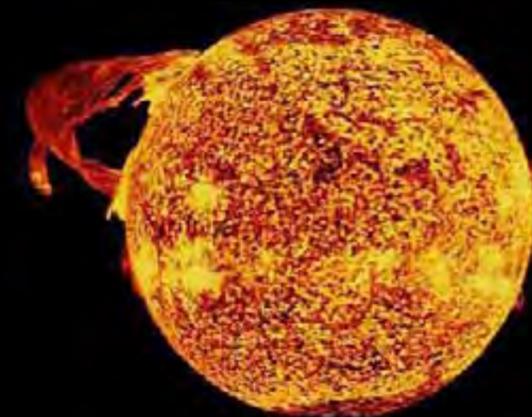
if you have plenty of alternatives you should be ok. But it is all about preparation, and about understanding the potential for failure.

Also be aware of localised threats - safety of navigation isn't always just a technical issue - it can be about security too.

## WHAT DO YOU THINK?

What experiences have you had of overreliance or failure?

Share your views email us at : [dpo@dpooperators.org](mailto:dpo@dpooperators.org)



## eLORAN

Norway, France and the UK are working together with the Russian Federation to develop a common approach to eLoran in Europe. Other European countries following these developments would be likely to join in, if there was an agreed European policy and there are signs that the European Radio Navigation Plan may be revived, incorporating eLoran.

Where GPS has long been the darling of the smartphone brigade, a new range of miniature solutions, are bringing eLORAN into people's hands, into their cars and yes onto ships. The built-in GPS module provides standard capability, but when GPS is denied, restricted or lost, the advanced eLORAN receiver takes over.

While our overreliance on GPS has been prompted by its fantastic capabilities we should not be blinded to its weaknesses – and in eLORAN there is an answer to ensure we are safe and not held to ransom by jammers and spoofers.



# ALL ABOUT CAPABILITY

Sam Ayres is a student studying for a degree and Certificate of Competency. As part of his studies he launched a questionnaire looking at the usage of capability plots. We asked him to share the feedback with us.

As we all know DP vessel operations can be fraught with dangers that could lead to both injuries of crew members and damage of the vessel and/or damage to an offshore platform. DP manufacturers provide a Capability Plot to accompany the Vessels DP manual which gives a rough guidance on the vessels capabilities in a range of wind forces and directions.

A capability plot however, is just a mathematical model of the vessels capability based on how the wind force will affect the vessels ability of maintaining position; it does not consider the sea state that will inevitably be experienced at high wind speeds. Most DP vessel capability plot show that the vessel could maintain its position in wind speed of between 80-120 knots, at these wind speed you can imagine how the sea state would act upon the vessel.

It struck me during my cadetship that some DPO's were using the capability plot as an aid to navigation to assess whether it be safe or not to use the vessel in DP mode, if it would maintain position in the wind speed that is being experienced by that vessel.

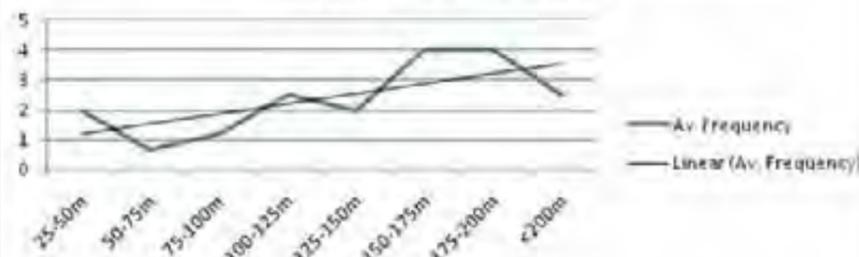
I then used this as the basis for my dissertation at the University of Plymouth to find out exactly how similar DP vessels capability plots are to the actual capabilities of vessels and also how often DPO's are using capability plots and how important DPO's think capability plots are.



## Two questionnaires were compiled;

The first questionnaire (1) was designed to find any correlation between DPO's experience and vessel type and how important they think the capability plots are and also how often they use it.

A graph to show the relationship between the vessel length and the average frequency that the plots are used.

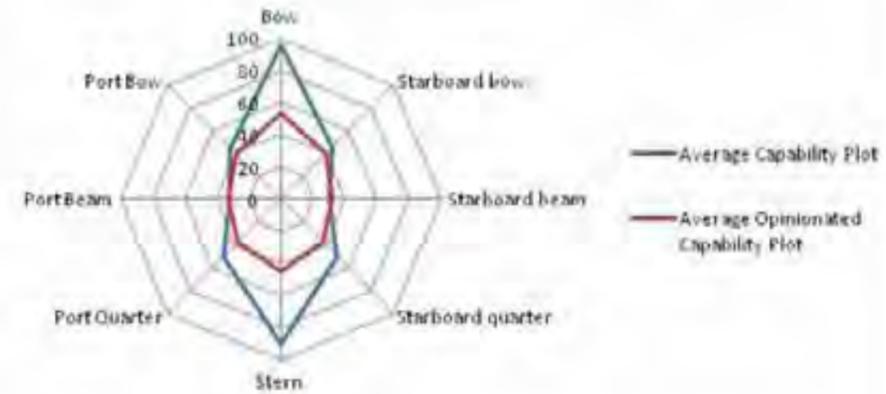


The results from this questionnaire showed that on a scale of 1-10, 10 being the highest DPO's ranked the capability plot as 6.8/10 and on a scale of 1-5, 5 being the highest they used the capability plots was 2.3/5 which is between "once a week during operations" and "once every 24 hours during operations" a large proportion of DPO's said however that they never use the capability plots.

There was no correlation between the DPO's experience and how important or how often they used the capability plot, only the vessel size seemed to matter in how the capability plot was used. The bigger the vessel then the more important the capability plot is viewed as the graph suggests.

Questionnaire 2 was designed to assess the difference between capability plot data from a range of vessels and the actual capability of those vessel based on DPO's opinions.

A graph to show the comparison between the average of all the vessels capability plots and the average of all the Officers opinions on their vessels capability.



This Graph shows how an average of all the capability plots can be laid over the average of all the DPO's opinions to make an average "hybrid" capability plot and an opinionated capability plot.

The graph suggest that for wind directions on the beam then the capability plots are accurate but as the wind direction moves around toward the bow or stern then the margin between the capability plot and actual capability of the DP vessel increases. It could be said on average DP vessels cannot withstand wind speeds of above approximately 50 knots even if the direction is fine on the bow, the action of the swell becomes too severe to maintain position.

From the analysis of this dissertation DPO's should be reminded that the use of capability plots should not be used for determining if it is safe to engage the vessel in DP mode but they should engage the vessel in DP mode in a safe area, allow the model to build and then assess if the power trends, thrust demand and feedback are at a safe level and the position is consistent enough to warrant the use of DP mode in close proximity to an offshore structure.



If you are studying any aspect of DP, we will be happy to help and will spread the news to our members and supporters. Email [dpo@dpooperators.org](mailto:dpo@dpooperators.org) to find out more.

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So what's the deal, well...it's faster, slimmer, cleverer and it has cameras. Surely that is enough?



## FLIR Scout Camera

Ever wanted to have your own "Ghost Hunter" experience on the bridge? Well the supercool FLIR Scout handheld thermal imaging camera is the thing for you.

More than just a night vision gadget, the camera, as you will suspect from its moniker, makes use of thermal imaging to give the user a crisp image however dark the surroundings.

Okay, it is expensive - but if you can't convince the Company Security Officer that YOU NEED ONE. You shouldn't be at sea.

## Polar Fit Heart Rate Monitor

Around 43% of men and 33% of women are overweight (at sea it's even more). That means at least a third of you need to do more exercise. Polar is here to help, with its heart-rate monitor watches.

In addition to watching your heart, the watch also keeps track of how many calories are burnt each session, which can then be uploaded onto your computer to track your progress.

You can also hook yourself up when on the desk and measure the effect of the wind picking up and that rig getting closer!



# What's On 2011

## April



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[www.fpsconference.com](http://www.fpsconference.com)



[www.liftingoffshore.com](http://www.liftingoffshore.com)

## May



[www.chinaoffshoresummit.com](http://www.chinaoffshoresummit.com)



[www.otcnet.org/2011](http://www.otcnet.org/2011)



[www.deepwatercongress.com](http://www.deepwatercongress.com)

## June



[www.all-energy.co.uk](http://www.all-energy.co.uk)



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