Lloyd's List Intelligence

Reflections on speed and performance claims (Part V)

Evidence

By Prokopios Krikris FCIArb, consultant and arbitrator

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Consultant and arbitrator

Prokopios Krikris has broad experience in charterparties, including contract drafting, operations, claims and arbitration. He has worked across commercial, technical, legal and operations departments, overseeing ship operations and major repairs on board.

In addition to his work as a consultant, expert, and arbitrator, he has held senior roles such as Operations Manager, Post-Fixture Claims Manager, and Legal Director. Prokopios holds a Master's in Maritime Studies, a Master's in Maritime Law (distinction), a postgraduate qualification in Contract Law (First Class, 19.2/22), a CIArb diploma in Maritime Arbitration, and many accreditations from CIArb, Lloyd's, and RICS, in dispute resolution.

He has published extensively on speed and performance, piracy-related costs and laytime disputes, delivered training in various companies, and handles charterparty claims beyond performance issues. He is a Fellow of CIArb, a Member of Baltic Exchange and a LMAA Supporting Member.

The series "Reflections on Speed and Performance Claims" presents the reasoning applied by arbitrators in their decisions and sets out various observations based on the parties' arguments submitted in several cases.

Reflections on speed and performance claims (Part V)

Evidence

By Prokopios Krikris FCIArb, consultant and arbitrator

Introduction

In most charterparties, warranties relating to the vessel's speed and fuel consumption are expressly qualified by reference to "good weather" conditions. As reflected in numerous published SMA and LMAA awards, owners often rely on this qualification to defend against allegations of underperformance. Reports from independent weather stations, analyses conducted by weather routing companies and evaluations of expert evidence with reviews of witness statements form part of the overall evidence.

Conversely, charterers frequently seek to challenge the evidential weight of ship's logs, arguing that weather routing reports should take precedence, or asserting that the logs have been falsified. In efforts to discredit the logs charterers have, in several cases, alleged that the logs are internally inconsistent (ie, conflicting with other shipboard records), incomplete (failing to comply with the requirements of clause 11 of the NYPE form), or tampered with, citing the crew's potential self-interest in concealing the vessel's underperformance.

In particular, key points that have been raised to challenge logs are: bunker discrepancies during surveys,[1] significant discrepancies with weather routing analyses,[2] incomplete logs[3] and internal inconsistencies with other documents (reported slow steaming due to bad weather versus engine consumption, engine rpm, or slip) or other specific circumstances.[4]

Such disputes are not new. Similar contentions can be traced back to early reported cases involving salvage, collision, cargo damage, unseaworthiness, and other maritime claims where the accuracy and reliability of ship's logs were examined by the fact-finders.

As in other parts of this series, the author has drawn upon case law, arbitration awards and practical experience to illustrate the evolution of legal and evidential approaches to such disputes, aiming to clarify a topic that continues to present challenges for practitioners and claims handlers alike.

1 See by analogy *Suez Fortune Investments Ltd v Talbot Underwriting Ltd (The Brillante Virtuoso)* [2019] 2 Lloyd's Rep 485; [2020] Lloyd's Rep IR 1 at para 83.

2 *London Arbitration 23/21* (2021) 1094 LMLN 1, *Lloyd's Maritime Law Newsletter*, 5 November 2021, *London Arbitration 15/23* (2023) 1145 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 October 2023 and *London Arbitration 22/18* (2018) 1017 LMLN 2, *Lloyd's Maritime Law Newsletter*, 23 November 2018.

3 *London Arbitration 2/24* (2024) 1151 LMLN 3, *Lloyd's Maritime Law Newsletter*, 19 January 2024.

4 See *Nicoban Shipping Co v Alam Maritime Ltd (The Evdokia)* [1980] 2 Lloyd's Rep 107, page 112; *Aktieselskabet de Danske Sukkerfabrikker v Bajamar Compania Naviera SA (The Torenia)* [1983] 2 Lloyd's Rep 210.

The general background

Since the weather is raised as a defence to underperformance claims, it remains key to determine which evidence should be given greater weight in establishing the actual weather conditions encountered for the purpose of assessing the vessel's performance against the contractual standard. Ultimately, the issue turns on the sufficiency and probative value of the available evidence, as well as the weight to be attributed to the prevailing weather conditions. Arbitrators are required to consider all relevant factors and assess the totality of the evidence presented.

It is noteworthy that many earlier decisions were rendered at a time when weather analysis techniques were comparatively underdeveloped. For instance, in *The Divinegate*[5] it was stated that: "Both parties acknowledged that there is a very significant industry involving everyday practice and expertise in the assessment of routes, weather, performance and consumption, and where scientific advances (including GPS) have introduced considerable sophistication in the assessment of these claims".[6]

Another notable introduction is of the automatic identification system (AIS) which has been considered in several recent arbitrations.[7] In particular, in two recent cases tribunals rejected the AIS as applied by the weather routing companies, on the facts applied to these cases.

For the purpose of illustration, in a case before the Singapore Court of Appeal[8] (which was not a speed and performance case), a party sought to challenge the reliability of vessel-tracking data, referring to the lack of relevant daily/hourly information and the underlying AIS data, which would allow for the accurate tracking of the vessels. It was explained that a vessel-tracking service supplied real-time and historical AIS position information. It aggregated data from terrestrial AIS stations, satellites and shipborne AIS, "receiving the AIS position data in its raw format and converting it into a human readable format without any manipulation or alteration".[9] It was found that "AIS typically provides position accuracy within a few metres but can be less precise in areas with poor GPS satellite coverage".

It was found that the vessel-tracking service was reliable, and used transmitters which are required to be fitted on board all ships undertaking international voyages by the 1974 International Convention for the Safety of Life at Sea.[10] Having heard expert evidence from a Captain, the court was convinced that the vessel-tracking service had "global coverage with comprehensive tracking capabilities", although the expert expressed some of the limitations of the AIS, stating: "there are a variety of reasons for gaps in AIS data including transmission issues, poor reception, crowded conditions or even the deliberate switching off of the transmitters. He also pointed out that gaps in data do not mean that the AIS data received is not guaranteed to be accurate, reliable or complete such that the reliability of the information displayed ... is undermined".

The court held that: "On a consideration of all the evidence, we are satisfied that the ... data ... is reliable and provides strong grounds for suspecting that the documents adduced by the respondents in support of their respective proofs of debt are forged or otherwise fraudulent".

More and more owners are also citing the Electronic Chart Display and Information System (ECDIS) as evidence to support the actual prevailing weather conditions en route. The ECDIS has been put as evidence in several collision cases in the Admiralty Court.[11] To challenge the reliability of the ECDIS requires expert evidence: "Extracting, interpreting and understanding the implications of that data requires specialist expertise"[12]. Although weather routing companies often attempt to discredit the ECDIS display on general grounds, such contentions are unlikely to prevail unless supported by credible and specific evidence. To date, there have been no reported arbitration cases directly addressing the reliability of ECDIS data as evidence in speed and performance disputes. It remains to be seen how tribunals will approach this issue.

5 *Eastern Pacific Chartering Inc v Pola Maritime Ltd (The Divinegate)* [2023] 1 Lloyd's Rep 442.
6 At para 90.
7 *London Arbitration 21/18* (2018) 1013 LMLN 1, *Lloyd's Maritime Law Newsletter*, 28 September 2018; *London Arbitration 12/24* (2024) 1169 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 September 2024.
8 *Yit Chee Wah v Inner Mongolia Huomei-Hongjun Aluminium Electricity Co Ltd* [2025] SGCA 27.
9 At para 98.
10 1184 UNTS 2, adopted on 1 November 1974, entered into force 25 May 1980, with accession by Singapore on 16 March 1981.
11 *Owners of the Vessel "Sakizaya Kalon" v Owners of the Vessel "Panamax Alexander"* [2021] 2 Lloyd's Rep 70.
12 *R v Beere* [2021] EWCA Crim 432, at para 41.

The authenticity of ship's logs has been challenged in several cases, although such challenges have not always been successful. For example, in *London Arbitration 10/05*,[13] although the master had failed to report the vessel's passage through the Straits of Messina, as he was required to do by local regulations, all the evidence was to the effect that the vessel indeed proceeded via the Straits. The log stated that it passed through in the early afternoon of 26 December and there was no evidence to the effect that it made its passage around the island of Sicily. The tribunal rejected the charterers' allegations that the log was falsified. The reasons given for that allegation centred on the log being made out in the same hand. However, it was routine practice for a ship's officer to neatly write up a fair log from the rough bridge log. Other than that, there was no suggestion that the log contained data which was other than genuine.

On the other hand, in *London Arbitration 6/14*[14] (which is not discussed in practice and raised some notable observations for disclosure), the logbook was a particular case in point. The owners had sought to rely upon a photocopy of a single page from the log. It was only after the request (and corresponding order) for disclosure was made that the whole logbook was made available for inspection. Whereas it had earlier been suggested that only the page disclosed was of relevance, it became clear, once the log had been produced and examined, that that was manifestly not the case. The claimants put as evidence a report from WRI, a weather routing company, and challenged the masters' reported bad weather conditions.

The historical treatment of evidence

Before proceeding to an analysis of the relevant cases, it is appropriate to outline the historical evolution of the evidential approach to addressing weather-related discrepancies – an area of continuing relevance extending beyond the confines of speed and performance claims – as such an overview serves to clarify the principles and arguments that continue to feature in many arbitration proceedings today.

The first London Arbitration award published to address this issue was *London Arbitration 8/83*,[15] which concerned a dispute over vessel speed and performance. In that case, the tribunal held that:

> "... the Ocean Routes report was of course based on information received from other vessels either following the same route or in the vicinity. The report should not be viewed as contradictory evidence as to what was written in a vessel's log. It was well known that weather could be very local and in any event the report was based on too few indications from other vessels to disregard or contradict the log entries. In fact, by the terms of clause 26 the parties had agreed that the vessel's logs would be determinative of bad weather. There was no evidence that the logs were fraudulent and, accordingly, the parties were bound by this agreement."

The tribunal referred to the various sources of evidence and their limited scope. These same considerations can be traced back to earlier cases involving various types of disputes arising from weather discrepancies. Furthermore, as there was no compelling evidence to suggest that the logs were fraudulent, the tribunal held that the parties were bound by their contractual arrangement – specifically that the logs would be determinative in establishing the occurrence of adverse weather, as agreed.

To provide context for this decision and the evolution of the associated arguments, the analytical framework outlined below extends beyond speed and performance claims and encompasses a broad spectrum of cases, including those involving collision, salvage, cargo damage, seaworthiness and incidents resulting in crew accidents or fatalities – all of which require an evaluation of the prevailing weather conditions at the material time.

In particular, evidence from weather stations, nearby vessels and meteorological sources has been considered in numerous court cases, which explains the practice among parties' counsels in maritime arbitration of adducing such evidence to challenge the reliability or accuracy of deck logs. For instance, in *The Democritos*,[16] the charterers contended that "the continuous bad

[13] (2005) 664 LMLN 3, *Lloyd's Maritime Law Newsletter*, 27 April 2025.
[14] (2014) 893 LMLN 4, *Lloyd's Maritime Law Newsletter*, 21 February 2014.
[15] (1983) 98 LMLN, *Lloyd's Maritime Law Newsletter*, 4 August 1983.
[16] *Marbienes Compania Naviera SA v Ferrostal AG (The Democritos)* [1975] 1 Lloyd's Rep 386.

weather recorded in the Log Books was not usual for the time of year and neither wind force nor wind direction as entered in the Log Books accorded to any reasonable degree with conditions as reported from other vessels or weather centres".

Going back earlier, in *The Vestris*[17] the proceedings arose out of the disaster of 12 November 1928, when the steamship *Vestris* sank off the coast of Virginia while on a voyage from New York to South American ports, with 110 lives lost. The shipowners sought to limit liability. The big issue was whether due diligence had been exercised by the owners in making the vessel seaworthy.

The disaster was the subject of a prolonged Board of Trade inquiry. The history of the event had been narrated by numerous witnesses. On many points, they disagreed, and it was "quite natural that the observation and the recollection of some of them would be affected by the mental and physical strain which they underwent". But while there was doubt as to some of the details, the material facts were established "with a reasonable degree of certainty".[18]

District Judge Goddard found that the weight of the testimony regarding the weather conditions justified the conclusion that the weather alone, which was not exceptionally severe for that season of the year, was not an adequate explanation of the loss of *Vestris* and that its loss was the result of a combination of conditions and events, none of which alone would have caused it. Testimony too voluminous had been offered regarding the weather and the experiences of other vessels in the general vicinity of *Vestris*.

There was considerable variation in the descriptions of the weather and sea. Officers from some of the other vessels in the general neighbourhood of *Vestris*, although none was very near, testified that the wind reached Beaufort force 12. Whether they were right in this or not, no other vessel – and some of them were small – suffered any serious damage. US Weather Bureau officials, who regularly prepared weather charts from radio reports from vessels and other sources, described it as a severe Atlantic storm but not a hurricane. The weight of the testimony justified the conclusion that the storm which *Vestris* encountered was no more severe than was reasonably to be anticipated at that season of the year on a voyage from New York to South America; it was not extraordinary and should not have caused serious difficulty for a stable well-found ship.

In *The Ben Gairn*,[19] an admiralty action in personam for payment of salvage, the meteorological weather reports in the vicinity of the incident, along with other meteorological reports, and ship observation reports from other ships were considered.

Man on the spot?

The owners' position is that the vessel's crew, being on the spot, are best placed to assess the weather conditions actually encountered. This contention itself has a notable historical dimension.

In *Meah v H Hogarth & Sons Ltd*[20] it was stated that "the man on the spot is, as a rule, in a better position to form judgments than somebody who can merely read the relevant documents at a later time".[21]

In *The Arctic Viking*,[22] the vessel took a heavy sea on its port quarter or side which filled the port side of its deck, causing it to heel to port until it was on its beam ends. The judge heard evidence from two experts as to the probable

17 (1932) 43 Ll L Rep 299.
18 Page 302 col 2.
19 *Bruce's Stores (Aberdeen) Ltd v Richard Irvin and Sons Ltd (The Ben Gairn)* [1979] 1 Lloyd's Rep 410.
20 [1959] 1 Lloyd's Rep 257.
21 At page 261 col 2.
22 *Waddy v Boyd Line Ltd (The Arctic Viking)* [1966] 1 Lloyd's Rep 335.

wind and sea conditions at the material time. As to the direction of the wind, the judge accepted the evidence of the men on the spot.

While there is force in the argument that crew members are trained weather observers and can best evaluate the prevailing weather conditions on the spot, there are reported cases in which the charterers' representatives asserted that the crew have a motive to exaggerate the weather conditions. For instance, an LMAA arbitrator said:[23] "It is commonplace that ship's logs are frequently 'adjusted' in order to help the cause of those on board and sometimes that of the principals. This practice is known as 'flogging the log'. No doubt it is often done with considerable skill, and no one who matters ever finds out about it. But often this is not the case. Examples are legion ...".

Nearby vessels

It is not uncommon for charterers to contend that other vessels operating in the vicinity reported differing weather conditions, or for weather routing companies to assert that, based on data from nearby ships, the conditions reported by the master were overstated. This is not a new point.

In *Elfie A Issaias v Marine Insurance Co Ltd*[24] it was stated that the "account of the weather [did] not agree with the weather reports which [had] been collected from other ships which were more or less on the same course as the *Elias Issaias*, although there was no ship which was precisely on her course, and ... the nearest weather report came from a ship which was about 50 miles away".[25]

In other cases, it was held that the weather report did not assist as it did not reflect the weather "quite [on] the spot where the vessel was".[26] In *Adler v Dickson*[27] the court noted that the "weather is local"[28] and that the meteorological observations were "not made at the side of the ship, but [covered] a fairly substantial area".[29]

However, in *The Bertil*[30] the weather report from a nearby weather station was considered. This was a salvage case, and the plaintiffs alleged that they rendered services in conditions of significant risk and brought *Bertil* to safety "from a position of considerable danger".[31] The defendants contended that the services were little more than normal berthing services. According to the defendants, "at the time of the services, the weather was fine and clear, with a light easterly breeze, and the tide was flood, of little force. The wind and weather remained unchanged throughout the whole day".[32]

Therefore, the case turned on the evaluation of the evidence as to the prevailing weather conditions since there was a discrepancy between the evidence of the two parties which related to the conditions of wind and tide.

The judge said:[33]

> "So far as the force of the wind is concerned, I propose to follow the *official weather report*, which has been put before me, and which shows that at noon the wind was ESE, force 2. That observation was from the North Pier Lighthouse, and I do not suppose that the weather there can have differed very much from the weather at the Jarrow Staiths. At any rate, I find that the force and direction of the wind at the Jarrow Staiths were approximately as stated in the official weather report to which I have just referred. ... As to the tide, I have had the advantage of advice from the Elder Brother, and he has directed my attention to the information contained in the North Sea Pilot; in addition to that, my attention has been directed by the parties to the tidal information on the Admiralty chart. Bearing in mind those sources of official information, and taking advantage of the advice I have received from the Elder Brother, I find that at the material time the force of the tide was approximately two knots."

In another salvage case, *The Eileen Siocht*,[34] the plaintiff's case was that the situation was in "real or at least reasonably apprehended danger"[35] in the weather conditions prevailing or would prevail soon in terms of wind, swell and tide. The evidence, on the other hand, was

[23] Bruce Harris, "The importance of documents in maritime arbitrations", *Arbitration: The International Journal of Arbitration, Mediation and Dispute Management*, 1998, 64(4), pages 253 to 256.
[24] (1922) 13 LL L Rep 381.
[25] At page 382 col 1.
[26] *The Refrigerant* (1925) 22 Ll L Rep 492, at page 493 col 1.
[27] [1955] 1 Lloyd's Rep 315.
[28] Page 332 col 2.
[29] Page 332 col 1.
[30] [1952] 2 Lloyd's Rep 176.
[31] Page 176 col 2.
[32] Page 178 col 2.
[33] Page 181 col 1.
[34] (1948) 82 Ll L Rep 128.
[35] Page 132 col 1.

that the weather conditions were fine. The judge noted that: "So far as the weather is concerned, I also have the benefit of independent reports from the meteorological stations both at Swanage and at Poole. I need not go into the details of what is recorded in those reports; I think it is sufficient to say that, substantially, they support the defendants' case and make nonsense of the plaintiffs' case with regard to the weather".[36]

In *The Kefalonia Wind*[37] the defendants' vessel sailed from the Great Lakes to Cuba carrying the plaintiffs' bulk cargo of maize. The maize was sold to the plaintiffs under a general contract which provided inter alia that it should have a maximum humidity of 15.5 per cent. According to the vessel's log it ran into stormy weather on 25 November. The winds varied between force 8 and force 10 with heavy pitching and rolling and large waves sweeping the decks and holds. Seawater leaked through the hatch covers, wetting some of the cargo.

The vessel was recorded as having reduced speed in order to prevent damage to the vessel and its cargo. The defendants "suggested that this record kept by their officers was somewhat exaggerated. They based this suggestion (a) on the natural tendency of men at sea in bad conditions to exaggerate the hazards encountered, particularly where a cargo claim might be in the offing, (b) on a Meteorological Office report on the probable weather prevailing on the vessel's route at the time, and (c) on the vessel's engine room log, which showed a significant reduction in engine revolutions only during one shift on 27 November".[38]

Bingham J rejected the defendants' suggestion. While it was "no doubt easy in a storm to exaggerate the force of the wind and the size of the waves, one cannot be mistaken about waves sweeping the deck and holds, and the suggestion that this did not happen as recorded was never explored with the vessel's chief officer, who was the only factual witness called to give oral evidence by either side during the whole case".[39]

In the absence of a real reason to doubt it, Bingham J regarded "the officers' record of what they saw and experienced as being more likely to be reliable than a meteorological report of what was probable over a large area. And although the engine log [did] not suggest a prolonged reduction in revolutions of the main engine it [did] suggest a markedly reduced consumption of fuel by the main engine during the period when the deck log recorded a reduced speed. In evidence adduced by the defendants, the chief officer testified that for about two days waves were constantly breaking over the deck".[40] The somewhat longer period recorded in the deck log was, in the judges' view, more likely to be accurate. The judge accepted the log's description of the sea conditions encountered as being substantially accurate.

In *The Nea Tyhi*[41] the plaintiffs had to prove that their cargo of plywood was damaged after they purchased it on 11 October 1978. *Nea Tyhi* departed from Port Kelang on 3 September 1978. The plywood cargo, which had been stowed on deck, was protected by a PVC sheet. Further:

> "The chief officer said that during inspections made after Sept 16, when rough weather was encountered, it was noted that the PVC sheeting had started to deteriorate and to be torn. He formed the view that this resulted from heavy rain which, he said, had been encountered on Sept 4 and 5, but which was not recorded in the deck log book. There was heavy rain on Sept 30. In the vicinity of Newport there was heavy rain on Oct 14 or 15, 1978. The plaintiffs were put to the trouble and expense of obtaining evidence from the Meteorological Office at Bracknell about the rainfall at Newport, Gwent, between Oct 14 and 27, 1978. The meteorological stations nearest to the position of *Nea Tyhi* [were] at Frebisher Road and at Yuys-y-Fro Farm. The rainfall at one of those stations differed markedly from the rainfall at the other station. On such evidence, which was the best available, any decision could be classified as arbitrary."[42]

The same point arose in several New York arbitration cases under the SMA Rules. In *The Oinoussian Captain*[43] the charterers relied on the Bendix system at that time, which offered specialised services in performance analysis.

The Bendix analysis presented by the charterer in support of its contention that the vessel failed to meet its charter party speed warranty of "about 14 knots" during the currency of the charter, though comprehensive, was

[36] Page 132 col 2.
[37] *Empresa Cubana Importadora de Alimentos v Octavia Shipping Co SA (The Kefalonia Wind)* [1986] 1 Lloyd's Rep 273.
[38] Page 275 col 2.
[39] Page 275 col 2.
[40] Page 276 col 1.
[41] [1982] 1 Lloyd's Rep 606.
[42] Page 612 col 2.
[43] SMA 1591.

not sufficiently precise to carry the charterers' burden of reasonably demonstrating that the vessel in good weather could not maintain its warranted speed (after application of the normal, commercial half- knot adjustment).

Specifically, the governmental meteorological data used in the preparation of the analysis for the most part relied upon comparative weather readings from nearest vessels some hundreds of miles away from *Oinoussian Captain*'s location on given dates. Accordingly, the panel unanimously concluded that the charterer had insufficient grounds to maintain its speed claim, which was disallowed in its entirety.

Weather forecasts

In *Ali v Furness Withy (Shipping) Ltd*[44] the weather forecast was discounted as evidence, and the deck log entry prevailed. The weather forecasts were also cited in numerous arbitration cases, even after 2005, some of them unreported. The tribunal said that the "weather forecast" is just a forecast, not the actual prevailing weather required to evaluate performance.

[44] [1988] 2 Lloyd's Rep 379.

Meteorological reports

Courts have accepted meteorological evidence to resolve disputed issues of fact. In *The "Atheltarn" v The "Succession"*[45] it was stated:[46]

> "Meteorological evidence: this evidence was criticised as being a new departure in collision cases, but I quite agree with Counsel for the *Succession* that the Court is not only entitled but bound to have regard to any new scientific developments which may help it to solve any disputed questions of fact."

Meteorological reports were considered in several other cases, as well as weather reports from stations.[47] *Burnard & Alger Ltd v Player & Co*[48] was an action brought for damages for alleged breach of contract and/or duty in the carriage of potash on the steamship *Taycraig* from Antwerp to Plymouth. The defendants denied liability and pleaded an exception due to perils of the sea. "The vessel met with what may be described as uncomfortable and unpleasant weather, but at no material time before the water was taken on board did the weather report at any material place show wind force of more than seven, which is a moderate gale."[49] The judge was not convinced about the severity of the weather, and he thought that the logs had been written to create the impression that the weather was worse than it was.

[45] *United Molasses Co (The Atheltarn) v Lees (The Succession)* (1934) 48 Ll L Rep 83.
[46] Page 86 col 1.
[47] See *C Hoffman & Co v British General Insurance Co* (1922) 10 Ll L Rep 434; *Burnard & Alger Ltd v Player & Co* (1928) 31 Ll L Rep 281.
[48] (1928) 31 Ll L Rep 281.
[49] Page 283 col 1.

Canning v Maritime Insurance Co Ltd[50] was an action brought under a marine insurance policy issued by the defendants for the total loss of the steamer *Braedale* on 16 October 1932, by "perils of the sea in the English Channel". The insurance company alleged that *Braedale* "was wilfully cast away by those on board, with the knowledge and consent of the plaintiff".[51] In dealing with one point concerning the flooding of holds by water coming through a ventilator in the hatch, the judge was satisfied from the meteorological reports that it was "quite impossible that any substantial quantity of water went down the ventilator".[52]

In *The HMS Glorious*[53] the logs were challenged in an action that arose out of a collision in a thick fog in the Mediterranean. "The wind at the time of the collision was from an east-north-easterly direction generally and was of a speed of about nine knots. The weather was a thick fog – visibility of about a cable to a cable and a half – and the fog was travelling from the eastward with the wind. Tide, or current, did not exist."[54]

As the judge noted, there were a great many documents related to this incident, "and of course, the more documents you have the more individuals you have making them and the more opportunity there is for different observers to record different things".[55] He was satisfied "that the log of the fore centre engine-room [was] the most reliable of the documents ... Allowance has always to be made for inaccuracies by the eye of the observer and the hand of the recorder. One knows how easy it is to make mistakes, and elasticity has always to be given to the word 'about'."[56]

In a case involving damaged cargo, *The Dimitrios N Rallias*,[57] it was said on behalf of the owner that there was bad weather on the voyage shortly after leaving Alexandria. The log records showed some weather, but the meteorological reports from other places did not support this account.

In *The Iran Vojdan*[58] Bingham J held that evidence may conceivably "be needed as to the weather in the Bay of Biscay. So far as the conditions prevailing during the voyage in question [were] concerned ... the best evidence, [he] would assume, would be the vessel's log, and if that did not suffice, [he] would assume that a meteorological report could be agreed".[59]

When owners contend adverse weather contributed to a vessel's reduction in speed, the evidential burden may accordingly shift to them. In *London Arbitration 4/11*[60] the tribunal said: "owners needed to show positively, rather than through expert inference, that the sea state was actually such that the time in question should not be taken into account (or, to put it another way, that there was no breach of the warranty)".

Inferences drawn from circumstances

In certain cases, judges – independent of the weather reports – have drawn inferences based on the surrounding circumstances. A similar approach has been adopted in recent London arbitration proceedings, where arbitrators have inferred fouling or propeller damage from elevated slip levels observed during fair weather conditions. In such instances, direct evidence was not deemed necessary, and the arbitrators made their findings and corresponding awards for loss based on the circumstantial indicators.

In *The Fireside*,[61] involving a collision case, Willmer J concluded that, as confirmed by the weather report from the Chapman Lighthouse, it showed that "throughout the evening in question the weather was recorded as 'misty and rain' – and [it was to] be remarked that the Chapman was sounding for fog from 5.30 pm until midnight. Quite apart from that weather report, [the judge drew an] inference [from the circumstances] that the weather was at least as thick as the plaintiffs say – and perhaps a bit thicker – from the fact of the confusion into which the two ships seem to have got, and from the very fact of the obscurity of so much of the evidence, which, as [he had] already said ... was largely due to the fact that both vessels were taken by surprise in coming upon each other so suddenly".[62]

50 (1936) 56 Ll L Rep 91.
51 Page 91 col 1.
52 Page 103 col 2.
53 (1932) 43 Ll L Rep 450.
54 Page 456 col 2.
55 Page 462 col 2.
56 Page 462 col 2.
57 (1922) 13 Ll L Rep 363.
58 *Dubai Electricity Co v Islamic Republic of Iran Shipping Lines (The Iran Vojdan)* [1984] 2 Lloyd's Rep 380.
59 Page 386 col 2.
60 (2011) 826 LMLN 2, *Lloyd's Maritime Law Newsletter*, 22 July 2011.
61 [1957] 1 Lloyd's Rep 6.
62 Page 11 col 2.

In *The Tilia Gorthon*[63] the defendants' ship was "crossing the North Atlantic Ocean from Canada to England, carrying on deck a cargo of timber, which was the property of the plaintiffs, when she encountered winds of storm force and the resulting heavy seas. During the course of that storm most of the deck cargo was washed overboard".[64] Again, the weather encountered was put under the microscope.

The chief officer of *Tilia Gorthon* gave evidence. "His evidence supported the entries in the deck log as to the state of the weather, but [the judge's] confidence in the reliability of his evidence was undermined when he [was told] that the ship rolled 45 deg, and that this was not just an estimate, but a figure taken from a reading of the inclinometer at the time."[65] Sheen J was unable to accept that evidence, because he found as a fact that it could not be true.

This can be contrasted with *London Arbitration 23/21*,[66] where the tribunal used its specialist knowledge to make positive findings. For instance, in *The Tilia Gorthon*, the judge said: "As a general rule, there must be evidence to support a finding of fact which is not common knowledge. But it seems to me that within reasonable limits a Judge may use his special knowledge of general matters. If this is the correct approach the hearing of an action will be expedited and costs will be saved ... There is advantage to the litigants if specialist Judges bring into play to a limited extent their specialist knowledge".[67] However tribunals should be mindful of their duties under section 33 of the Arbitration Act 1996. There are instances where parties do not agree with this approach.

In *The Evdokia*[68] the umpire considered whether the deck logs recorded the reported weather conditions. The arbitrator found that some entries in the deck logs were exaggerated, and he made this finding for three reasons:

> "(a) there was no evidence of a drastic reduction in engine revolutions when the weather was said to be blowing force 9 and force 10 gales.
>
> (b) the evidence of Oceanroutes does not confirm that the vessel encountered more than a force 7 gale.
>
> (c) at the time when it appeared from the log the weather was at its worst between 4th and 8th August soundings were being taken on deck forward, which would have been quite impossible if the weather had been for this period anything like as bad as that recorded in the log book."[69]

In *The Torenia*[70] the judge had to examine the causes of the sinking of *Torenia*, and the logs came into consideration as far as it concerned the weather conditions experienced. The judge did:

> "... not accept the evidence of the master or that of the chief officer in so far as they suggested that the weather on the 13th or the 14th was exceptional or phenomenal. The log book for Apr 13 and 14 stated opposite 08. 00 hours 'bilges and double bottoms dry'. Similar entries occur for earlier days. [Therefore, the judge was] satisfied that actual soundings were carried out on the 14th or indeed as to the reliability of any of these entries. If the weather was as logged on the 14th, namely 'Waves continue to break on decks and hatches', it would have been at least dangerous and probably impossible to sound some or all of the vessel's compartments. [Thus, the judge did not] accept the chief officer's explanation that they altered course to make the sounding possible. [That was] improbable, unless they were already expecting trouble (which they say they were not), and in any event, no such change of course was logged, although the time involved in taking the soundings would not have been trivial in its extent. ... A vessel in this condition was not in imminent danger of capsize."[71]

Therefore, in addition to the weather conditions recorded, a comprehensive review of all relevant evidence – such as deck, engine logs and other parameters – may disclose internal inconsistencies, thereby reducing the evidential weight accorded to the logs.

63 [1985] 1 Lloyd's Rep 552.
64 Page 553 col 2.
65 Page 554 col 1.
66 (2021) 1094 LMLN 1, *Lloyd's Maritime Law Newsletter*, 5 November 2021.
67 [1985] 1 Lloyd's Rep 552, page 554 col 1.
68 *Nicoban Shipping Co v Alam Maritime Ltd (The Evdokia)* [1980] 2 Lloyd's Rep 107.
69 Page 112 col 1.
70 *Aktieselskabet de Danske Sukkerfabrikker v Bajamar Compania Naviera SA (The Torenia)* [1983] 2 Lloyd's Rep 210.
71 Page 220 col 1.

Meteorological experts

Early cases in the English courts show that in numerous cases, the parties adduced evidence from a meteorologist to analyse the weather encountered on the voyage. Arbitration cases under the SMA Rules followed the same approach. In *Mayban General Assurance Bhd v Alstom Power Plants Ltd*,[72] in the course of its passage from Ellesmere Port to Land's End *Eliane Trader*:

> "... was subjected to gale force winds for a period of about 16 hours on 26 January as she entered St George's Channel and for a further period of about 30 hours from about the time she passed Milford Haven until shortly before she rounded Land's End. ... The experts agreed that the conditions of wind and sea encountered by the vessel on 27 and 28 January must have caused her to pitch and roll heavily in a way that set up a 'corkscrewing' motion, but there [was] nothing to suggest that that was anything other than the response to be expected of any similar vessel under those conditions."[73]

Experts investigated how often wave heights exceed 6 m for more than 24 hours in the western approaches to St George's Channel and the Bristol Channel. One expert analysed ships' and satellite data statistically and also consulted the Met Office wave model database:

> "Although the data from these two sources produced slightly different results, they corresponded to a significant extent. The information obtained from the Met Office computer model indicated that the incidence of such spells was about twice as great.
>
> The only question on which the experts were divided was how much, if any, weight was to be placed on the information derived from the different sources, in particular that obtained from the Met Office computer model. [One expert] considered that the results based on satellite observations were likely to be most reliable because they corresponded best with observations that had been made in the past from the Sevenstones light vessel which used to be moored between Land's End and the Isles of Scilly. He was inclined to discard the results based on ships' observations because they did not correspond as well with the observations made from the Sevenstones light ship, although they were broadly in agreement with those obtained using the satellite data. He was very doubtful about the information obtained from the Met Office because it differed so much from the results obtained by the statistical method. Mr Lawes, on the other hand, thought that the Met Office information could not be disregarded altogether and ought to be taken into account in reaching any final conclusion."[74]

Although the expert "could provide persuasive reasons for preferring the results derived by the statistical method based on satellite data to those derived from other sources, he accepted that all the results were subject to a margin of error and that the right answer might lie somewhere between that produced by the statistical method and that obtained from the Met Office computer model".[75]

The other expert said much the same: " His view was that all the results were subject to a degree of uncertainty and that one should make use of data from as many sources as possible to have confidence in the overall conclusion".[76]

The judge approved this as "a sound approach" and said that "it would be inappropriate to disregard the Met Office information entirely, though the fact that the results based on ships' and satellite observations support each other suggests that they should be given greater weight". One expert "thought that the Met Office information was supported by similar information derived from a different computer model of wave frequency distribution at a sea location about 45 miles to the south west of that on which the Met Office model was based, but in [the other expert's view] that only added to the doubts about its accuracy because of the rate at which the wave climate deteriorates in that sea area as one moves further west".[77]

[72] [2004] 2 Lloyd's Rep 609.
[73] Page 615 col 1.
[74] Page 615 col 2.
[75] Page 616 col 1.
[76] Page 616 col 1.
[77] Page 616 col 1.

US law

Similar issues have also arisen, primarily in collision cases, which often address allegations of tampering with or falsifying log entries. An interesting analysis is cited in *The Adamastos*.[78] In this case, the panel "heard testimony from several witnesses and reviewed the extensive documentary material counsel had introduced. There were important credibility issues that seriously affected the factual findings they had to resolve". The panel said: "we do not ignore nor can we lightly dismiss the import of information gaps in the vessel's official records, equipment failures and the vessel's outright refusal to allow the charterer and/or its representatives aboard after the grounding and while undergoing repairs in Montevideo". Also, "the original working chart indicating the vessel's position at the anchorage was never produced and no satisfactory explanation was ever given for its disappearance".

As the panel noted: "the deck and engine logs had been taken apart and reassembled, were full of deletions and were obviously tampered with. The oil transfer book had pages removed which were later retaped in place ... The sounding book was full of 'whiteout' corrections, making it impossible to read original entries. The owner's expert witness prepared casualty investigation notes which were not retained, and the owner's technical consultant generated shipyard repair notes which were also disposed of. The data logger, course recorder and weather fax were acknowledged to be out of working order during the relevant period".

As the panel said: "Considering the above, we deem it appropriate, as a minimum, to draw inferences that the information which would have been obtained from the above material and equipment would have been adverse to the owner's position. Courts take a particularly dim view of log book alterations and have stated their views on such practices".

The panel was guided by similar principles expounded in the following court cases.

In *Freedman & Slater Inc v M/V Tofeco*[79] the court stated: "Courts have universally condemned the practice of altering any of the entries in the ship's log".

Judge Learned Hand in *Warner Barnes & Co v Kokosai*[80] said: "[W]e cannot avoid the conclusion that it [the log book] had been dressed up to excuse the ship's faults. That goes much further than merely to discredit the document itself; it is positive evidence upon the very issue and weighty evidence as well. *Wigmore* §278. When a party is once found to be fabricating, or suppressing documents, the natural, indeed the inevitable, conclusion is that he has something to conceal, and is conscious of guilt".

In *Capehorn Steamship Steamship Corporation v Texas Co*[81] Judge Skelly Wright stated: "Suffice it to say that under the law of the sea, when a party comes into court with log entries which will not stand the test of credibility, that party's chance of success in litigation is little short of non-existent". The judge also said: "Courts many times have inveighed against parties who fabricate documents and then perjure themselves to support them".[82]

In *Andros Shipping Co v Panama Canal Co*[83] the District Court was faced with unexplained alterations in the ship's record and the court addressed the alterations by stating: "The unexplained alteration of a ship's record of maneuvers 'not only cast suspicion on the whole case of the vessel, but creates a strong presumption that the erased matter was adverse to her contention'".[84]

Moreover, the case of *The Silver Palm*[85] has been cited in SMA awards and textbooks, with a particular analysis of the logbooks in chapter 7 of *The Law of Seamen*.[86] The Court of Appeals held: "The importance of the logbook entries in determining marine causes has always been recognized by courts of admiralty. The alteration of logbooks by erasure and substitution ... has long been condemned by courts of admiralty. It not only casts suspicion on the whole case of the vessel, but creates a strong presumption that the erased matter was adverse to her contention."

In *The Bertina*[87] the panel said: "Embedded in our jurisprudence is judicial recognition of the crucial roles logs play as contemporaneous records of a vessel's life

78 SMA 3416.
79 1963 AMC 1525, 1532, 222 F. Supp. 964, 969 (SDNY 1963).
80 1939 AMC 281, 286, 102 F.2d 450, 453 (2 Cir 1939).
81 1957 AMC 1335, 1339, 152 F. Supp. 33, 36 (ED La 1957).
82 Citing *Warner Barnes & Co v Kokosai Kisen Kabushiki Kaisha*, 2 Cir, 102 F.2d 450, 453; *The Silver Palm*, 9 Cir, 94 F.2d 754, 762, 1937 AMC 1427.
83 184 F.Supp. 246, (DCZ, BD1960).
84 Quoting *The Chicago*, 94 F.2d 754, 762 (9th Cir 1937).
85 94 F.2d 754, 762, 1937 AMC 1427.
86 Martin Norris, *The Law of Seamen* (4th Edition, Lawyers Co-Operative Publishing Company, 1985).
87 SMA 3144.

and the consequent adverse impact on the owners' case when the evidence establishes improper log keeping. The log keeping furnished ample evidence that the owners failed to supervise adequately the activities of their shipboard personnel".

The panel found it difficult to accept that logs covering the period of time of the ones presented in evidence had been reviewed by management – and, if reviewed, management had countenanced the manner in which the logs were kept. Indeed, the company's chairman admitted that superintendents were unable to visit the vessels under the company's management with sufficient regularity. In short, the panel found that the logbooks for *Bertina* which were in evidence were completely discredited and the panel placed no reliance on these documents. Furthermore, the panel drew such inferences as the evidence warranted from the inadequacies of the log keeping.

Arbitration

Fact-finding is a multi-factorial process. Evaluating evidence is an essentially impressionistic exercise; arbitrators may differ. That is an ordinary feature of the arbitral process: arbitrators are not automatons or clones. Specialist tribunals dealing with the technical aspects of such disputes may make different findings or draw inferences.

These decisions are grounded in the tribunal's factual assessment after careful evaluation of the evidence. As such, the issue is inherently fact sensitive. Deck logs, while important, must be considered in conjunction with and tested against other available evidence, unless otherwise agreed by the parties in the charterparty. Even in cases where the parties agreed that "deck logs shall be binding", the tribunals test the evidence when there are compelling reasons to show that the logs were falsified.

Regarding SMA arbitrators, US arbitrators are not strictly bound by the Federal Rules of Evidence in the absence of the parties' agreement and are allowed a great deal of discretion.[88] Section 23 of the SMA Rules provides (in part) that:

> "The parties may offer such evidence as they desire and shall produce such additional evidence as the panel may deem necessary to an understanding and determination of the dispute. The panel shall be the judge of the relevancy and materiality of the evidence offered."

[88] David Martowski, *Navigating Maritime Arbitration: The Experts Speak* (2nd Edition, Juris 2024) page 8.

English law gives the tribunal a wide discretion as to the conduct of the arbitration. It is generally recognised that arbitrators have great freedom to determine the admissibility of evidence and weigh its probative value in light of the case's circumstances and the parties' arguments.

Section 34 of the English Arbitration Act 1996 states: "It shall be for the tribunal to decide all procedural and evidential matters, subject to the right of the parties to agree any matter", which is embodied in para 15 of the LMAA Full Terms 2021.

The common issues arising from the deck logs are:

- The evidential value of the logs in establishing the weather conditions encountered en route. This question arises not only in determining speed and performance claims but also in other matters, such as cargo damage and issues of seaworthiness.
- The existence and interpretation of preference clauses. The interpretation of the terms "major" and "consistent" discrepancies has often been a matter of contention between the parties.
- The sufficiency of evidence to challenge the logs.

Deck and engine logs

A frequently contested issue in performance disputes concerns the evidentiary weight to be afforded to the vessel's contemporaneous log entries compared to third-party weather routing reports. The veracity of the deck logs as evidence has also been tested in numerous cases in English courts, as well as in arbitration cases.

SMA panels have also addressed evidential disputes in which allegations were made about tampering with the logs.[89] Moreover, in *The Lauberhorn*,[90] the panel addressed issues with the "kleftis" – "The U-shaped device, also referred to as the 'kleftis' or the Thief-pipe, which allegedly was used to connect the bunker and cargo lines on board the tanker in order to transfer oil from a cargo tank to a bunker tank".

The authors of *Carver on Charterparties* state: "It is a matter of long-standing practice among London maritime arbitrators to prefer the conditions recorded in the vessel's logs to evidence from a weather routing company unless there is evidence to suggest that they have been falsified or deliberately exaggerated".[91]

The authors cite *London Arbitration 6/19*.[92] Even in the latest, 3rd Edition – published after several awards were issued following the 2021 edition – the authors have maintained their position on this point.

SMA arbitrations have endorsed the same view. For instance, in *The Myrina*,[93] the panel said: "It has been stated in many arbitration awards that the Master's logs are to be considered an accurate and reliable representation of the weather experienced on the voyage unless they can be impugned by conclusive evidence of blatant or wilful inaccuracies".[94]

Moreover, in *The Emil S*,[95] the panel stated that: "Unlike many other speed/consumption cases where arbitrators have found that the log books, absent any glaring discrepancies, are the best source for the prevailing weather condition at the time, in this case, the reliance on log books is modified by having added independent weather bureau reports as a supplementary source".

It is not uncommon for the weather conditions reported from the master to differ from those analysed by the weather routing companies. This does not mean the logs as evidence should be discredited.

This was explained by a panel of three arbitrators in *London Arbitration 29/22*,[96] in which it was stated: "The tribunal was unconvinced about the acclaimed accuracy of satellite observations. Satellite telemetry records did not provide sufficiently accurate data regarding localised wind and sea state, to automatically cast immediate doubt on ship observations".

On the other hand, in *London Arbitration 23/21*,[97] the specialist arbitrator examined the deck logs and tested them against other evidence, including for internal

89 SMA 2321, SMA 3416 and SMA 2327.
90 SMA 2699.

91 Paragraph 7-787.
92 (2019) 1024 LMLN 2, *Lloyd's Maritime Law Newsletter*, 1 March 2019.
93 SMA 3846.
94 Citing *The Golden Shimizu*, SMA Award 2991 (1993).
95 SMA 3453.
96 (2022) 1115 LMLN 2, *Lloyd's Maritime Law Newsletter*, 2 September 2022. The summary of this award was written for *Lloyd's Maritime Law Newsletter* by the present author.
97 (2021) 1094 LMLN 1, *Lloyd's Maritime Law Newsletter*, 5 November 2021.

consistency, and found the logs to be unreliable. In *London Arbitration 2/24*,[98] the arbitrator held that: "The copies of the deck and engine room logbooks were mostly illegible and both were incomplete, which suggested that neither were the contemporaneous records required by SOLAS Chapter V Regulation 28 and IMO Resolution A.916(22). The engine performance data section of the deck logbook was left blank. The logbook was not acceptable as clause 67 evidence of the weather conditions encountered on the voyage".

To deal with evidential differences, the parties typically include a clause in the charterparty that governs the evidence that will lead in cases of consistent discrepancies.[99]

An interesting issue arose in *London Arbitration 7/25*[100] in which the parties agreed that in case of discrepancies, the weather should be determined by arbitration. "The charterers suggested that, as far as weather was concerned, the WRC report should be preferred to the master's evidence. The charterparty provided that in the event of discrepancies, the weather should be determined by arbitration. No separate arbitration reference was made in this respect, so the decision fell on the arbitrator in this reference. He found that there was no indication of the master's reports being falsified or that the WRC's records were to be preferred to the master's on-the-spot observations." The summary is extremely brief on this point and offers no guidance.

In *London Arbitration 12/24*,[101] clause 72 of the charterparty rider clauses stated:

> "... Evidence of weather conditions shall be taken from the Vessel's log books and the independent weather routing bureau reports. In the event of a consistent discrepancy between log books and bureaus reports a mutually acceptable weather buro to be appointed whose findings will be binding."

The arbitrator said that the WRC data were to be compared with the ship's contemporary records. "As most WRCs were emphatic about the accuracy of their reproduced data, that they considered unassailable, the arbitrator tested both data sets for consistency and future reference." Further:

> "... although AIS data was acceptable as reliable, WRCs should understand that the preferred source of evidence relating to conditions encountered on a voyage in London arbitration was contemporaneous ship records, as mandated by SOLAS and IMO regulations. However, other sources would be considered when it was demonstrated that the ship's contemporaneous records were inaccurate or falsified. In any event, best practice required a reconciliation if distances relied on by a WRC differed from the distances recorded by the ship. In this regard, the distance differential of 25 miles between WRC Y and the ship was equivalent to 1.92 hours of sailing at 13 knots."

The arbitrator also noted that: "Considering that visual estimation from the ship was judged at sea level and WRC data at 10 m above sea level, there was a good correlation, suggesting no over-reporting by the ship".

In a similar vein, in *London Arbitration 32/22*,[102] the tribunal said that:

> "... the hindcast data relied on in reproducing the wind and sea conditions experienced on a voyage was reliably sourced. However, this was not to say that these conditions ought to be the preferred source of weather experience, as it must be borne in mind that an objective comparison with ship's data was complicated by the fact that onboard observations were subjective to the observer who relied entirely on visual observations which were at best crude estimates. This did not mean that the logbook entries were irrelevant and could be ignored."

Again, the arbitrator weighed the evidence: "The weather, sea state and other factors as reported by the master were compared with the WRC values".

New York arbitrators also followed a similar approach. In *The Konkar Dinos*,[103] for the panel to evaluate the claims submitted in this case, it was first necessary to determine which evidence it should accept. A careful scrutiny of every day of sea performance as recorded in the vessel's deck and engine room log was undertaken, and this was

[98] (2024) 1151 LMLN 3, *Lloyd's Maritime Law Newsletter*, 19 January 2024.
[99] See eg *London Arbitration 22/18* (2018) 1017 LMLN 2, *Lloyd's Maritime Law Newsletter*, 23 November 2018; *London Arbitration 26/19* (2019) 1042 LMLN 2, *Lloyd's Maritime Law Newsletter*, 8 November 2019; and *London Arbitration 9/18* (2018) 999 LMLN 1, *Lloyd's Maritime Law Newsletter*, 16 March 2018.
[100] (2025) 1182 LMLN 3, *Lloyd's Maritime Law Newsletter*, 28 March 2025.
[101] (2024) 1169 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 September 2024.
[102] (2022) 1120 LMLN 2, *Lloyd's Maritime Law Newsletter*, 11 November 2022.
[103] SMA 2631.

compared with the information reflected in the voyage abstracts. Thereafter, these records were compared with the testimony and report of the charterers' meteorologist. The panel was not surprised to find both explainable and unexplainable differences.

The foregoing analysis indicates that this was a factual determination to be made by the tribunal, involving an assessment of the deck logs in relation to the weather routing company reports, as well as an examination of their internal consistency. While discrepancies may arise, such differences do not, in themselves, warrant disregarding the deck logs as evidence.

In *The Marinicki*,[104] dealing with a point about the authenticity of the vessel's records, Ms Belinda Bucknall QC, sitting as a deputy Judge, made some general observations about the deck logs:

> "Before considering the various documents and the pleaded allegations relating to them, two matters need to be borne in mind. First, a vessel's contemporaneous records are compiled by human beings who inevitably make mistakes from time to time, however careful they seek to be. That is particularly true in the case of those who are comparatively inexperienced in the record keeping exercise. Secondly, motive is an important factor in determining whether alterations or erasures in the records have been made by someone honestly and diligently correcting a mistake or fraudulently to conceal the vessel's true navigation or condition. Unless the identified alterations to the documents are consistent with a version of events which the makers of the documents would have a good reason to want to conceal, fraud is unlikely to be an explanation for the changes."

New York cases

Divergent findings have compelled both courts and arbitrators to scrutinise the reliability and accuracy of deck logs. In *The Bertina*[105] the panel said that it was embedded in their jurisprudence the judicial recognition of the crucial roles logs play as contemporaneous records of a vessel's life, and the consequent adverse impact on the owners' case when the evidence establishes improper log keeping.

In *The Silver Palm*[106] the Court of Appeals held:

> "The importance of the logbook entries in determining marine causes has always been recognized by courts of admiralty. The alteration of logbooks by erasure and substitution ... has long been condemned by courts of admiralty. It not only casts suspicion on the whole case of the vessel, but creates a strong presumption that the erased matter was adverse to her contention."

In the *Bertina* case, the owners accepted that *Bertina*'s personnel did not properly keep logs, but sought to minimise the significance of what it argued were mere irregularities or "meaningless errors". The panel, however, believed the failings were far beyond mere irregularities, and because of inadequate management supervision were permitted to continue for a very long time.

Where the logs were not properly kept and entries were unreliable, speed performance was evaluated based on the analysis of a weather routing service.[107]

In *The Novkong*,[108] the panel concluded that while the charterer's supporting evidence was comprehensive, it was not complete. In this respect, log abstracts for two voyages were omitted, and some of the data pertaining to the vessel's movements were missing. Because of this, the panel was unable to determine with any accuracy the true extent of the vessel's underperformance. In addition, they viewed the charterer's performance calculation with some scepticism because it was overly simplified and made no allowance for normal service-related conditions. However, the calculation of a performance claim had never been an exact science, and from the evidence presented, they were persuaded that there was substantial merit

[104] *Maintop Shipping Co Ltd v Bulkindo Lins Pte Ltd (The Marinicki)* [2003] 2 Lloyd's Rep 655, para 62.

[105] SMA 3144.
[106] 94 F.2d 754, 762 (9th Cir 1937).
[107] SMA 2839.
[108] SMA 3145.

to the charterer's claim. Accordingly, the panel granted the charterer an allowance of $60,700 on this claim for $93,329.18

In *The Northern Star*,[109] the charterparty contained clause 44, which provided: "The basis for determining the vessel's performance shall be the statistical data supplied by the Master", the panel used its best efforts to determine whether or not this statistical data was of such questionable quality that the clause should be disregarded and that performance should be judged by the standards suggested by the charterer. They did not find that the master's data was of such an unreliable and unsupportable nature that none of these data could form part of the input into a determination of superior or inferior performance. The charterparty tied the vessel's performance to the statistical data supplied by the master, thus placing upon the charterer the burden of proving that the data was erroneous. The panel exercised the prerogative of their office and accepted the charterer's submission that the data was more reliable than the master's data. They ignored the master's data where it was in conflict with ship's data given to others for other purposes (weather reporting). They were more or less in complete disagreement with the charterer's determination of the distance travelled. They found, with minor exceptions, that the logbooks were a reliable source of information for assembling data in this area.

In *The Filiatra Legacy*[110] the owners took the position that numerous arbitration panels have held that in situations where the logs are to be used for evaluations they should not be discredited in favour of outside reporting unless there was overwhelming evidence of fraud and inaccuracies that clearly show the logs to be suspicious and unreliable. The panel majority agreed with this conclusion. When the parties have negotiated and agreed on terms in the contract that provide in two places that the vessels logs and abstracts shall be used for evaluating performance, the panel must uphold this emphasised dictum. The panel had to conclude that the parties were agreeable to accepting a certain calculated risk of imperfect weather reporting and less than professional weather estimating as practiced normally by seamen, which is what the average tramp vessel's logs usually record, when no fraud or deceit is involved. The mere 3 per cent difference between the vessel's log entries and those of analysts was quite persuasive in showing that the logs generally reflected the weather and seas the vessel was experiencing and were acceptable for counter-performance evaluation claims as presented by the owners, in accordance with the requirements of the charterparty.

In *The Oinoussian Sea*[111] the panel was dismayed by the absence of any log extracts (as opposed to the actual log books) to cover the period of the entire charter. It is normal that the master supplies the time charterer with log extracts on forms to be supplied by the charterers. In this case this was never done or, if it were done, no evidence was shown to the panel. The charterers did not appear concerned about receiving these log extracts.

[109] SMA 1494.
[110] SMA 2331.
[111] SMA 430.

In *The Myrina*[112] the dissenting arbitrator said that the panel was presented with a log book written in one hand and unsigned by bridge watch-officers. This by definition did not qualify under clause 11 of the NYPE form, which states that: "... the Captain shall keep a full and correct Log of the voyage ... which are to be patent to the Charterers ... when required". Just like any vessel documents used in support of a claim, logs, if they do not pass muster as "full and correct", which in the author's mind includes the concept of being original contemporaneous vessel documents, they can be put aside in favour of more accurate representations of the facts of the matter.

In *The South Shields*[113] the panel had to determine the source of evidence that would prevail. The relevant clause read: "Evidence of weather conditions to be taken from vessel's deck logs and independent government weather reports. In the event of consistent discrepancy ...". The panel noted that the only evidence of actual performance was found in the ship's progress reports made to Oceanroutes (a weather routing company) and to the owners. An examination of them indicated that there was very little discrepancy in the ship's reports with those used by Oceanroutes in its voyage analyses. Clause 42 of the charterparty did not specifically stipulate that the Oceanroutes figures were to be used, but rather that in the case of consistent discrepancy between the deck log and government weather reports, the latter would be used. Having found no such discrepancy, it was moot which reports were to be overriding. Unfortunately, the deck logs were not supplied to the panel, and that evidence was not available.

In *The Seamaid*[114] a sole arbitrator found that the disponent owners were in breach of of a charter party agreement by failing to provide copies of daily logs when required to do so. The fact that the vessel was owned by others and became a constructive total loss did not excuse the disponent owners from their contractual obligations since a constructive total loss in this particular case did not result in abandonment at sea or in a sinking.

[112] SMA 3846.
[113] SMA 2992.
[114] SMA 153.

Observations from London and New York cases

The commentary in *Time Charters* concerning breaches of clause 11 of the NYPE form is relatively limited. However, recent London arbitration[115] awards indicate that arbitrators have found the owners to be in breach of clause 11 in instances where logbooks were incomplete, or where significant discrepancies existed between the weather conditions reported by the master and those identified in analyses conducted by independent weather routing providers.

There are reported cases in which arbitral panels have accorded greater evidential weight to weather analyses provided by weather routing companies; however, in other instances, contemporaneous deck logs have been preferred. For instance, in *The Grace*,[116] the panel said the charterer could not recover for slow steaming solely on the basis of a weather and vessel performance service analysis. Such analyses are insufficient grounds for speed claims because they are based on assumed weather conditions derived from inconclusive sources.

Another issue in dispute was whether there were consistent discrepancies between the entries in the deck logs and the findings of independent weather reports. In a 1975 arbitration[117] the panel found that consistent discrepancies between vessel's log and US Weather Bureau analyses showed the vessel's performance to be below the charter party speed warranty. The panel considered that although the Weather Bureau reports were statistically accurate, some of them were taken from vessels up to 250 miles away, which could well have been experiencing weather much different than the subject vessel, but not consistently.

In *The Argo Master*,[118] the panel expressed the view that what was most difficult and troublesome to arbitrators was the determination of the actual weather encountered by the vessel during its voyage. The ship's deck officers were required to record in the vessel's deck log the weather and sea conditions which they observed at relevant

[115] See eg *London Arbitration 23/21* (2021) 1094 LMLN 1, *Lloyd's Maritime Law Newsletter*, 5 November 2021, *London Arbitration 15/23* (2023) 1145 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 October 2023, *London Arbitration 32/22* (2022) 1120 LMLN 2, *Lloyd's Maritime Law Newsletter*, 11 November 2022, and *London Arbitration 12/24* (2024) 1169 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 September 2024.
[116] SMA 1760.
[117] SMA 972.
[118] SMA 1489.

times. Simple logic dictates that the observations noted by the ship's officers should reflect the most accurate determination of weather being encountered by the vessel at any given time. However, the panel could not ignore the self-interest involved in over-stating existing weather conditions, where the crew would wish to justify potential underperformance on the basis of adverse weather.

In *The Polys Hur*[119] the charterer complained that the owner had failed to provide log abstracts as called for in clause 21 of the charter party. The clause specifically provided for submission of abstracts "from each port of call" and the charterer contended that such requirement was ignored. The owner took the position that the vessel was prompt and timely in submitting the various "message reports" to which the charterer had not raised any complaint. These "message reports" gave the charterer immediate information concerning the vessel and its operation. As a result, the charterer could not have been prejudiced by delays in submitting the printed form reports, which they required. The panel held that message reports were insufficient to fulfil the owner's obligation to provide the charterer with log abstracts; logs prepared in the owner's office after the fact were not "logs of the voyage" within the meaning of clause 21.

In some cases,[120] the propeller slip, the engine rpm, and the deck logs were considered. The same approach was adopted in some London arbitration awards.

Lastly, slight variations between weather routing reports are generally insufficient to diminish the evidential weight of either report. However, significant discrepancies in weather analyses may give rise to concerns regarding the reliability and accuracy of the data presented.

[119] SMA 1780.
[120] See, for example, SMA 3846.

Expert evidence

In arbitrations conducted under the LMAA Full Terms, the parties sometimes introduce expert testimony in performance claims. The problems which arise from the use of experts are well known and include "the costs involved; the danger that an expert appointed by a party to an arbitration may tailor his evidence to suite the appointor; the risk that numerous experts who add littled to each other's evidence will be used; and the strong possibility that experts appointed by the parties will disagree on technical matters, leaving the court or arbitrators little wiser. Doubts as to quality of expert witnesses have also been raised".[121] While the authors of this statement refer to expert evidence in general, these observations apply as well to expert evidence in speed and performance disputes, as many reported decisions reflect and will be discussed below.

Pausing here for a moment to deal with the types of evidence, In *The Torenia*[122] Hobhouse J (as he was then) said that there are three types of evidence that can be submitted to support an argument:

> "First, evidence is adduced which can be described as direct factual evidence, which bears directly on the facts of the case. Second, there is opinion evidence which is given with regard to those facts as they have been proved; and then, thirdly, there is evidence which might be described as factual, which is used to support or contradict the opinion evidence. This is evidence which is commonly given by experts, because in giving their expert evidence they rely upon their expertise and their experience, and they do refer to that experience in their evidence. So an expert may say what he has observed in other cases and what they have taught him for the evaluation of the facts of the particular case. So also experts give evidence about experiments which they have carried out in the past or which they have carried out for the purposes of their evidence in the particular case in question."

[121] Merkin, *Arbitration Law* (Lloyd's List Intelligence), para 15.36.
[122] *Aktieselskabet de Danske Sukkerfabrikker v Bajamar Compania Naviera SA (The Torenia)* [1983] 2 Lloyd's Rep 210.

Arbitrators are not obliged to accept expert opinions at face value; rather, such opinions are assessed as part of the overall evidence and accorded the weight deemed appropriate in the circumstances of the case. In certain London arbitration proceedings, tribunals have rejected expert opinions that appeared to advance advocacy rather than objective analysis, particularly where such opinions were speculative or directed at discrediting the opposing expert, rather than providing the tribunal with informed guidance on the disputed factual issues.

In cases involving fouling or engine damage, parties often rely on expert evidence to substantiate their claims, and the other party typically adds evidence as well. As noted in *London Arbitration 7/15*[123] (concerning mis-description of the ship's consumption):

> "The charterers had relied substantially on expert evidence. The owners had not adduced any expert evidence in response. They had not produced any main engine trial data. That, and expert evidence, might have been expected to be adduced if the owners were seeking seriously to challenge the charterers' expert case."

Furthermore, the tribunal shifted the evidential burden on the owners to justify the inaccuracies of the ship's records:

> "The evidential situation was most unsatisfactory. The owners had not explained why, as the charterers argued and the tribunal found, the ship's contemporaneous records and reports were inaccurate, seriously on occasions, nor why they were wholly inconsistent with objectively obtained tracking data that the charterers produced. In addition, there was a very substantial discrepancy between the ship's actual bunker consumption on the laden voyage and that which was warranted."

Experts must exercise care, as flawed reasoning can be challenged. In *London Arbitration 23/21*,[124] the owners' expert argued that no good weather existed and thus no claim could arise, despite evidence of fouling-related underperformance. The arbitrator reviewed but ultimately did not accept the owners' expert opinion (at least partly, since he accepted that the WRC applied the wrong methodology). The arbitrator was not bound to follow either party's expert opinion; instead, he made his own assessment of the matter.

In *London Arbitration 6/21*[125] the arbitrator endorsed the specialist's report for performance analysis:

> "In the tribunal's view, the specialist's report represented a realistic assessment of performance. It did focus on good weather performance, as defined in clause 29, and it was not biased in any way by its use of sea conditions and the effects of current. As regards significant wave height, it had to be remembered that maximum wave height might be as much as 1 m greater than the significant height. And as to current, the report did consider that, and concluded – fairly in the tribunal's view – that the effects (if any) were negligible. In short, the tribunal accepted that the specialist's report represented a reasonable measure of the vessel's underperformance."

It appears that the tribunal found the expert to be unbiased and presented a balanced approach. For instance, Cedric Barclay once said:

> "The mere flutter of a leaf will be pleaded by the owner as an excuse for not achieving the speed shown in the Charter. Smooth water, if its existence can be ascertained, will be encountered by the argument that underwater currents did prevent the vessel from reaching the 12 knots of her description."[126]

The same observation may be extended to expert reports which seek, through a rigid approach, to exclude all days from the performance analysis – an example of which is found in *London Arbitration 23/21*.[127] Again, it depends on the facts of the case.

In *London Arbitration 2/24*,[128] the arbitrator "was satisfied that there were no significant discrepancies. He therefore rejected the allegation that the master's noon reported fuel figures were wildly inaccurate". The charterers' allegation of an extra sailing time was based on AIS by their expert. The arbitrator said:

[123] (2015) 925 LMLN 4, *Lloyd's Maritime Law Newsletter*, 15 May 2015.
[124] (2021) 1094 LMLN 1, *Lloyd's Maritime Law Newsletter*, 5 November 2021.
[125] (2021) 1076 LMLN 4, *Lloyd's Maritime Law Newsletter*, 26 February 2021.
[126] "Arbitration in Maritime Technical Disputes", *Arbitration: The International Journal of Arbitration, Mediation and Dispute Management*, 1969, 35(3), pages 151 to 157.
[127] (2021) 1094 LMLN 1, *Lloyd's Maritime Law Newsletter*, 5 November 2021.
[128] (2024) 1151 LMLN 3, *Lloyd's Maritime Law Newsletter*, 19 January 2024

> "The contemporaneous evidence did not support the charterers' expert's allegation. The evidence contained in the [statement of facts] for the load port and in the correspondence at Gibraltar was to be preferred. The charterers' allegations concerning unreported sailing were rejected."

In the same case, the charterers' expert calculated the vessel's good weather speed to be 11.22 knots and overconsumption to be 16.07 mt. The WRC, on the other hand, calculated the vessel's good weather speed to be 11.58 knots. The arbitrator rejected the expert's position and said: "There was no clear breach of the performance warranty as the vessel exceeded the minimum speed warranted for the whole of the Mediterranean passage, within the allowed consumption".

In dealing with conflicting expert testimony, courts have placed weight on the qualification of the experts. For instance, a mariner can be better placed to express a view on the weather compared to a marine engineer.[129]

In some instances, parties have relied on opinions issued by the claims departments of weather routing companies. Such evidence has been viewed with scepticism, especially where they sought to interpret contractual provisions. In an unreported case, an experienced arbitrator requested a copy of the curriculum vitae of a weather routing company employee who appeared as their "head of claims dept", along with clarifications regarding the methodology used. The arbitrator ultimately found the responses unpersuasive, which contributed to his conclusion that the methodology in question was materially flawed.

London Arbitration 6/14[130] serves as a reminder that witness statements prepared by the crew should be in their own words (see also LMAA Terms 2021, Fourth Schedule): "The tribunal observed also that the master's statement had to be treated with some circumspection since it bore all the hallmarks of a statement written for him by the owners' lawyers, and the extent to which he provided intelligent input and checked it was open to question". Moreover, if contradictory testimony is given by two trustworthy, knowledgeable, and credible witnesses, the sole arbitrator cannot place too much emphasis upon either testimony.[131]

Expert evidence can be adduced to support market practices in performance evaluation[132] (the present author has been asked to give evidence in some cases). In *The Napal Naree*,[133] the owner produced a sworn declaration from Dr Austin Dooley, the president of Dooley Sea Weather Analysis Inc, who elaborated on the standard industry practice of using the method of extrapolating the "permitted" consumption for a voyage/period from the vessel's good weather performance on the same voyage/period ("the good weather method") because of the fundamental premise that "under-performance on good-weather days cannot but mean under-performance on bad weather days". The alternative of using the actual consumption as a starting point must introduce an allowance "at the back end" for the additional consumption in bad weather because the owner had not warranted any performance in bad weather.

The "all weather" or actual consumption approach is often viewed as more practical, particularly when adjustments are made to reflect the results of off-hire bunker surveys. At present, two distinct methodologies remain in use by various companies: one aligning with the commentary of Austin Dooley, and the other based on the "'all weather" or actual consumption model. Industry opinion remains divided on this issue, and there is currently no settled case law in England providing definitive guidance. Most reported cases lack detailed calculations that could offer clarity on the matter.

In the more recent case of *The Divinegate*, the dispute did not concern excess bunker consumption, but was limited to time loss, leaving this issue unresolved. Consequently, the matter continues to generate debate within the industry, and it remains for the decision-maker – not the weather routing company – to determine the preferred methodology based on the specific facts and circumstances of each case.

In *The Konkar Dinos*,[134] the panel found neither the ship's records nor the analysis of charterer's expert provided sufficient basis for calculating the vessel's fuel consumption; the panel therefore determined from its own calculations that charterer was entitled to recover for excess consumption.

[129] *Arnold v Halcyon Yachts Ltd (The Vlaroda)* [2023] Lloyd's Rep Plus 36.
[130] (2014) 893 LMLN 4, *Lloyd's Maritime Law Newsletter*, 21 Feburary 2014.
[131] SMA 3430.
[132] See *Eastern Pacific Chartering Inc v Pola Maritime Ltd (The Divinegate)* [2023] 1 Lloyd's Rep 442.
[133] SMA 4096.
[134] SMA 2631.

In *The Leonidas Glory*,[135] the charterers relied on loss of time and underperformance based on the findings of the Nautical Commission investigator, who was appointed by a court to examine the vessel's records to determine and report the causes of the alleged excessive delays. In the first part of the voyage, the ship encountered a wind with a Beaufort speed of between 7 and 10, and under such "heavy weather" the vessel should not be penalised for any delay and not meeting the speed warranted. However, on the second part of the voyage, although the vessel encountered weather in excess of that stated as good weather in the charter (up to Beaufort 3), the nautical engineer concluded that the vessel should have made at least about 75 per cent of the warranted speed of about 11 knots as long as it was encountering heavy weather with wind force less than Beaufort 7, which he considered normal for that area. For this period, he indicated the vessel did not meet the speed he deemed plausible during the voyage, and that the claim should be reduced accordingly.

The panel rejected his analysis as it ignored the good weather warranty in the contract. It was undisputed that the ship encountered heavy weather. The panel considered that the master and officers on board the vessel were the best judges of the actual weather conditions, with responsibility for safety and taking appropriate actions. The fact that the weather conditions were of wind force 5 to 10 with adverse current and swell, and the vessel being extremely stiff due to unlashed granite blocks of up to 25 to 28 mt each, compelled the master to act and reduce speed. Therefore, not only the period of heavy weather of wind force 7 to 10 should be excluded as the court surveyor determined, but the remaining period when the wind force was always in excess of force 3 and up to 7 must be excluded for not meeting the limited warranted performance. There was no evidence that the master did not prosecute the voyage with the utmost dispatch. Moreover, the panel found the surveyor's evaluation based on arbitrary conclusions and personal assumptions contrary to the terms of the charter party; therefore, it was inapplicable because the panel must abide by the agreed charterparty terms. Also, the surveyor was not appointed to judge or make a quantitative determination of the charterer's alleged claim: that function was one reserved for the arbitrators.

[135] SMA 2753.

Conflicting evaluations

In certain reported London arbitration awards, tribunals have expressed a preference for the more detailed weather analysis, provided that it was not demonstrated to be flawed or methodologically unsound. A more comprehensive report will not always lead as evidence. Other parameters are taken into consideration in evaluating conflicting expert evidence or conflicting evaluations of the vessel's performance.

When two sources of evidence are consistent with each other, they may outweigh or displace a third, conflicting source of evidence. In *Cenargo Ltd v Empresa Nacional Bazan de Construcciones Navales Militares SA*,[136] one of the issues in dispute related to the prevailing weather conditions during the sea trial. One expert gave in evidence "information about the conditions at the time of the trials which was obtained from Spanish Clima Maritimo and came from a wave buoy operated by ODAS (Oceanographic Data Acquisition Service) and located about 30 miles off Cadiz. The buoy was within 10 miles of the trials course".[137]

The other expert explained "why the buoy can underestimate swell induced waves". He said that the buoy "is tethered to the sea bed by a number of anchor chains and has no fixed reference point. It measures movement by an inertia device which relies upon the resistance of property to acceleration. If a wave results from a long slow swell, the acceleration of the movement of the buoy will be slow and therefore there are liable to be inaccuracies in calculations of movement".[138] Moreover, he "included in his report evidence about the conditions at the time of the trials which he obtained from the UK and Spanish Meteorological Offices ... The information from the Spanish National Meteorological Institute [was] derived from a vessel in the area of the sea trials". The UK meteorological office also reported "hindcast" based on reports from ships in the area.[139]

Andrew Smith J held that the observations made by the expert:

> "... in his report about the two meteorological reports seem to me to be justified: 'Both meteorological

[136] [2001] EWHC 543 (QB). This case raises several noteworthy issues relevant to speed and performance disputes, including the evaluation of conflicting expert evidence.
[137] At para 131.
[138] At para 132.
[139] At paras 133 and 134.

> reports are reasonably consistent, apart from the direction of the swell. It is evidence that the direction of the wind induced waves and the swell were different and this would be expected to give rise to confused seas, with maximum wave height in excess of either the wind induced sea or swell height. The sea conditions reported are totally consistent with the observation made on board during the trials that the significant wave height was about 2 metres'."[140]

He then went on to say:

> "The evidence which has particularly troubled me on this part of the case is the information from the wave buoy. However, I am impressed by Dr Medhurst's observation that such buoys do not reliably record swell, and I am not persuaded that the information from the wave buoy is sufficient reason to reject the evidence of the log form and the meteorological offices."[141]

There are also arbitration cases that reflect the tribunal's approach to conflicting performance evaluations.

In *London Arbitration 15/23*,[142] the arbitrator was slow to accept an "in-house" analysis performed by one of the parties in the reference. This was not an independent analysis.

In *London Arbitration 12/24*,[143] the arbitrator had to evaluate two weather routing reports and rejected both on the basis of various reasons. In their contract, the parties had agreed that one weather company would be excluded for the purpose of evaluating performance. The arbitrator highlighted that the role of weather routing companies was to remain impartial, and that the excluded company's conclusions were to be disregarded but not its weather data. This seems, in part, to conflict with *London Arbitration 21/18*.[144]

In *The Myrina*,[145] the dissenting arbitrator, Austin Dooley, said that the role of an expert is to assist the panel in understanding the facts of the matter. An expert's report needs to state the facts clearly, be technically and scientifically sound and provide documentation for the findings. While this is a matter of arbitration, he referred to Federal Rule of Civil Procedure 26(a)(2)(B) which pertains to the demands put upon a technical expert offering evidence in a matter in the Federal Courts. Regarding reports, the rule requires as follows:

> "... The report shall contain a complete statement of all opinions to be expressed and the basis and reasons therefor; the data or other information considered by the witness in forming the opinions; any exhibits to be used as a summary of or support for the opinions ..."

After examining the evidence, he found that the level of supporting documentation in the owner's expert report did not substantiate the findings, since:

> • The owner's weather expert offered supporting weather exhibits for only one day of the voyage. This consisted of weather data pertaining to a day of bad weather conditions for which, at the close of the proceedings, both experts agreed to similar weather conditions on the day in question. In other words, the expert offered no meaningful supporting documentation for any significant part of their findings.
>
> • The charterer's weather expert offered a detailed analysis and discussion of 10 voyage days of weather conditions together with documentation and exhibits in support of their conclusions regarding the weather pattern experienced by the vessel on both good and bad weather days.

In *The Istria*,[146] the panel accepted the detailed weather routing and vessel performance analysis over a less detailed analysis prepared by a competing service provider. However, there was no evidence that the "detailed" report was flawed, which could have affected the decision.

In *The Astro Energy*,[147] the panel said that the charters' expert witnesses calculations were more consistent with the available performance record, but because he did not follow industry standards for the "about" allowance and for the good-weather consumption determination as discussed above, the panel was obliged to make its own calculations.

[140] At para 135.
[141] At para 149.
[142] (2023) 1145 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 October 2023.
[143] (2024) 1169 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 September 2024.
[144] (2018) 1013 LMLN 1, *Lloyd's Maritime Law Newsletter*, 28 September 2018.
[145] SMA 3846.
[146] SMA 3449.
[147] SMA 2771.

In *The Cornilios*,[148] the panel rejected the charterers' claim based on a weather routing report since the calculations applied were not in accord with accepted practice. It took into account the average lower speed made good on the departure days that the vessel was manoeuvring and the sea-day was less than 24 hours. The panel also accepted the deck logs showing Beaufort 5 compared to the weather analysis of Beaufort 4.

In *The Spay Cap*,[149] the panel accepted that logbook speed and distance data were preferred over data in a weather advisory service report. London arbitration awards also adopt the same position when there are minor discrepancies between the reported and analysed distance steamed.

Again, it is a matter of weighing the evidence having regard to the methodology applied in line with the law, facts and practice. A more comprehensive report alone does not suffice. The same approach applies to the experts, as deemed in *The Divinegate*.[150]

In addressing weather discrepancies, both LMAA and SMA panels have considered the slip and other parameters. In *The Dominique*,[151] an award from 1975, the panel considered the slip and rpm reported by the vessel. It was concluded that the owner over-described the vessel's speed for the following reasons:

> "Speed determinants: 1. Age of engine; 2. Condition of bottom; 3. Wind and Sea conditions; 4. Currents and tides; 5. Slip. In smooth water with a fully laden vessel 'slip' may approximate 3 to 5%."

Further, the panel requested the owner's counsel to provide it with the pitch of the propeller when operating at 315 RPM "Full Out" and at 12 knots, but were told that it was not obtainable.

The author has observed that:

> (a) the weather routing report indicated almost 50 per cent less time loss than the digital twin model analysis. The latter, however, was subject to severe challenges on the facts of the case.
>
> (b) the vessel performed satisfactorily, yet the charterers submitted in-house evidence – prepared with reference to the Molland curves,[152] which estimates the effect of wind speed and direction on vessel speed, purporting to establish an "additional" frictional resistance that allegedly increases fuel consumption.

Weather routing companies

The use of weather routing evidence was first recorded in *Lloyd's Law Reports* in *The Washington*[153] and subsequently in *The Evdokia*,[154] where such evidence was adduced to challenge the weather conditions reported by the master during the voyage. In addition, SMA awards from the 1970s indicate the growing involvement of weather routing companies and meteorologists in the resolution of performance disputes.

Subsequently, such reports were employed to evaluate the vessel's performance, and the scope of these services expanded as many parties began to delegate this task to weather routing companies for the purpose of defending claims.

In some previously reported cases, points were raised over whether the weather routing companies were independent. The meaning of "independent" has been judicially determined in various contexts (eg in "independent surveyor" cases), but not in the context of speed and consumption clauses.

In *London Arbitration 9/18*,[155] the tribunal noted:

> "In dealing with a previous preliminary issue the tribunal had determined that an 'independent weather bureau' for the purposes of clause 29C included governmental organisations such as meteorological offices, but also included the companies which provided routeing services to the ship under the present charter, and similar companies."

[148] SMA 3182.
[149] SMA 1706.
[150] *Eastern Pacific Chartering Inc v Pola Maritime Ltd (The Divinegate)* [2023] 1 Lloyd's Rep 442.
[151] SMA 972.
[152] Molland et al, *Ship Resistance and Propulsion: Practical Estimation of Propulsive Power*, Cambridge University Press, 2011, page 5.
[153] [1976] 2 Lloyd's Rep 453.
[154] *Nicoban Shipping Co v Alam Maritime Ltd (The Evdokia)* [1980] 2 Lloyd's Rep 107.
[155] (2018) 999 LMLN 1, *Lloyd's Maritime Law Newsletter*, 16 March 2018.

In *London Arbitration 13/97*,[156] the relevant clause stated as follows:

> "Evidence of weather conditions to be taken from the vessel's deck-log and governmental weather bureau reports. In the event of a consistent discrepancy between the deck-logs and independent bureau reports the independent bureau reports to be taken as ruling."

The charterers had referred to reports from Oceanroutes which, they said, were based on governmental weather bureau reports. However, the charterers had not adduced any such governmental reports. In the tribunal's view it was not enough to rely upon Oceanroutes' reports, even though they were independent, because of the express requirement that evidence of weather conditions be taken from the log and from governmental reports. Oceanroutes were certainly independent, but they were a commercial, not a governmental body.

In recent years, there has been a notable development in the market whereby certain shipping companies have acquired vested interests in weather routing service providers, as has been publicly reported in various media sources. In such circumstances, the question arises as to how a tribunal would assess the evidential weight of a weather routing report submitted in arbitration when the producing company has a commercial or corporate connection to one of the parties involved in the dispute. Specifically, it is pertinent to consider whether such a report would still be regarded as "independent" evidence for the purposes of the proceedings.

Furthermore, the mere submission of a weather routing company's report does not, in itself, establish the validity of a performance claim or justify a deduction from hire. As reflected in numerous published awards,[157] many such claims have not succeeded – largely, as discussed in Part I of this series[158] – due to arbitral procedural issues. In several cases, tribunals have declined to accept the performance analyses presented and have expressed reservations concerning the methodology or evidential reliability of the reports produced by weather routing companies. The charterers also face the risk of a partial award being issued against them under the principles established in *The Kostas Melas*.[159]

For instance, in *London Arbitration 1/22*,[160] the tribunal:

> "... had explained to the charterers that the *Kostas Melas* test applied and that therefore they had to show a prima facie case as to why their deduction was made bona fide and on reasonable grounds. Their response was simply to rely upon a report of a weather routing company they had appointed, some further comments from that company and the fact that the owners did not appoint their own weather routing company. However the charterers had not addressed the question of good faith, nor had they made any attempt to show that they had a claim for off-hire."

Moreover, in *London Arbitration 26/19*,[161] the tribunal said:

> "There was no doubt that the weather bureau paid lip service to the English authorities in assessing vessel performance ... Closer attention needed to be paid to warranty conditions if weather routing organisations' reports were to be accepted at face value in London arbitration."

Also, in *London Arbitration 12/24*,[162] the tribunal appears to have distinguished between "arbitration practice" and the "weather routing practice", emphasising that the minimum evidential standards pertain to the admissibility and presentation of evidence in arbitral proceedings. The arbitrator further said:

> "As the monitoring role of an independent weather routing company (WRC) was to observe performance in the conditions encountered and to assess performance impartially, their reports must be examined to establish if the data reproduced was accurate and if industry best practice was followed. Also, the WRC data were to be compared with the ship's contemporary records."

The arbitrator further said:

> "The owners objected to the introduction of another company's report from WRC Y, which was from an excluded company as per clause 72. WRC reports were prepared in two stages. The first was a summary of hindcast data from attested sources, representing factual evidence of wind and sea at stated times at specified locations. The second was

[156] (1997) 465 LMLN, *Lloyd's Maritime Law Newsletter*, 30 August 1997.
[157] For example, *London Arbitration 1/22* and *London Arbitration 12/24*.
[158] P Krikris, "Reflections on speed and performance claims (Part I)" (www.i-law.com, 25 September 2023).
[159] *SL Sethia Liners Ltd v Naviagro Maritime Corporation (The Kostas Melas)* [1981] 1 Lloyd's Rep 18. See further Part I of this series.
[160] (2022) 1098 LMLN 4, *Lloyd's Maritime Law Newsletter*, 7 January 2022.
[161] (2019) 1042 LMLN 2, *Lloyd's Maritime Law Newsletter*, 8 November 2019.
[162] (2024) 1169 LMLN 2, *Lloyd's Maritime Law Newsletter*, 27 September 2024.

> an expression of opinion relating to speed and fuel consumption in computer-generated conditions identified as 'good weather' by programmed logic. Generally, opinions appearing in a WRC report were admitted in arbitration according to the terms of a charterparty, but were not considered as expert reports."

Several tribunals have likewise taken the position that reports prepared by weather routing companies do not constitute expert evidence. Brian Williamson, in a 2020 paper,[163] said:

> "As reported decisions of London Arbitrations involving performance claims corroborate, many arbitrators have reservations about WRCs' methodology in compiling their initial reports ... WRC reports cannot be accepted as expert evidence while the minimum requirements of CPR 35 are absent. At best, they will be considered as a scientific reconstruction of weather likely to have been encountered on a specific voyage, leaving the tribunal to decide on the evidential weight that each report deserves."

The position, at least for several arbitrators, is that a WRC's report cannot meet the criteria for acceptance as expert evidence, and therefore many arbitrators are still slow to accept at face value a WRC's reports in London arbitration.

Conclusion

In performance disputes, tribunals tend to place the greatest weight on contemporaneous deck and engine logs, unless there is credible evidence that these records have been falsified or materially overstated. As a result, charterers must provide strong supporting evidence to challenge their accuracy. Weather routing reports, which often do not take the vessel's logs into account, are rarely accepted as expert evidence and must still meet the evidential standards required in arbitration. In practice, clear records, consistent data and credible expert analysis carry more influence than technical complexity, emphasising the importance of reliable documentation and transparent methodology when presenting or defending claims.

[163] Williamson, "Understanding Performance Claims, Part III", Rio 2020.

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