

**T**here has long been a misunderstanding that seismic surveys covering the same geographical areas in some way are “duplicative” or overlapping, suggesting that they are not necessary or can be “reduced” in some form by sharing data. On the contrary, there is no such thing as a duplicative survey.

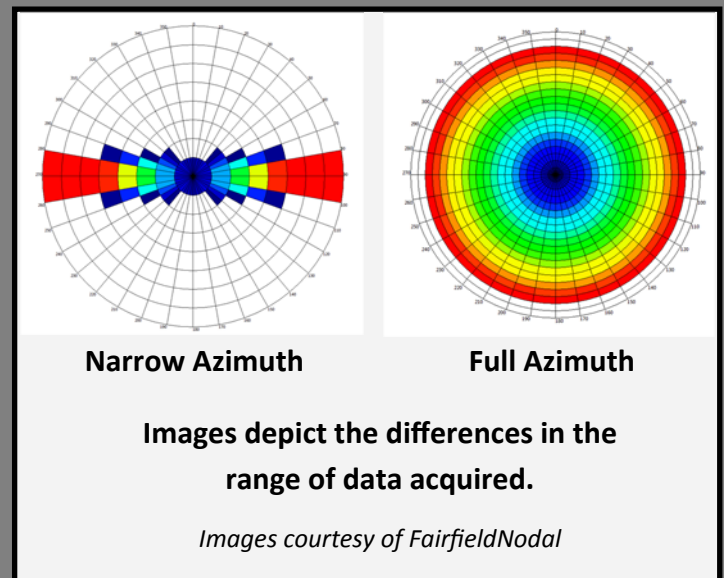
While it may appear that the sound sources, listening hardware, and vessel operations are similar, the configuration of the survey and data acquisition and processing options are numerous. Companies use proprietary, patented survey acquisition and data processing methods that make their data and each survey distinctive. This diversity is demonstrated throughout the year at trade shows and exhibitions around the globe, including the IAGC Annual Meeting, SEG, NAPE, and EAGE as well as many others.

Ultimately, the exploration companies make value-difference choices from the various options whether they opt to utilize one or many surveys over an area of interest. Survey data, even if acquired in overlapping geographical areas or periods of time, contain different information about the subsurface and what lies beneath it. Geophysical customers find these data differences substantial enough that they often pay for multiple sets of information for the same geographical area in order to have the confidence to invest billions of dollars in the effort to bring those resources to the consumer.

## Surveys are Unique

Acquisition of seismic data varies greatly depending upon the design and objectives of the survey. Diversity of acquisition can include one or a combination of the following (list is not all-inclusive):

- *2-D, 3-D, 3D wide-azimuth survey geometry* – Each survey geometry will provide a different image or image-quality of the underlying geology.
- *Orientation of the survey* – The orientation of a survey is based on the direction of the survey, for example from southwest to northeast versus southeast to northwest or west to east. Different orientations will image the underlying geology differently.
- *Towed streamer versus autonomous nodes* – A seismic streamer has multiple hydrophones encased within the streamer pulled behind a seismic vessel at 5 to 10 meters below the waterline. An autonomous node is placed on the seabed that allows full azimuth acquisition and enhanced imaging of the subsurface.
- *Streamer length* – The longer the streamer cable the better the image produced and the deeper the geology can be imaged.
- *Streamer spacing* – Spacing distances between



streamers produce different qualities of data. The tighter the spacing between streamers, the better the data produced leading to better understanding of the underlying geology.

- *Acquisition azimuth* – Narrow azimuth, wide-azimuth, full azimuth are different types of acquisition techniques that provide different imaging qualities.

Over time, it is inevitable that different surveys, each with different emphasis and utilizing different technologies may overlap. Yet, that does not render them “duplicative.”

If surveys had ceased in the U.S. Gulf of Mexico twenty to thirty years ago, before technological advancements to see geological structures beneath dense structures like salt domes that had previously hidden oil and gas deposits, the latest GOM discoveries would not have occurred, and U.S. production offshore would have stalled. The world's known oil reserve discoveries have doubled thanks to advancements in geophysical technology resulting in better seismic imaging to pinpoint reservoirs, especially in deep water and below thick salt formations and within shale formations.

## Mitigation Measures

IAGC-recommended mitigation practices reduce potential effects of surveys on marine life. Those mitigation measures include but are not limited to exclusion zones, observers who keep a lookout for marine mammals and startup and shutdown procedures to protect these animals. The stable, healthy status of marine populations where we operate, both on land and in the marine environment for as long as six decades in many locations, demonstrates that seismic surveys are environmentally safe, even over prolonged periods of continuous activity. Further, the recommended mitigation measures are accepted by governments around the world.



## Flaws in the Duplicative Survey Assumptions Framework

While environmental advocacy groups may believe there are unnecessary “duplicative” surveys, they do not consider the influence of competition which leads to better seismic surveys, better decisions about when and where to drill and cost savings that are passed on to the consumer.

Each proposal for a new survey is based upon fundamental shortcomings in existing data. For example, the technical specifications for existing data may be inadequate for the target of the new survey or new technologies and survey designs may render existing data wholly obsolete.

Oil and gas exploration and production (E&P) companies pay for new G&G data, and by extension, new surveys to identify new resources. Confidence in the identification of new resource potential in turn reduces the risks and uncertainties associated with finding and developing new resources. Because the reduction in risk is valuable to the industry, technological advancements in seismic surveys and data processing, along with the years of research and development and the funding they require are encouraged and protected as valuable intellectual property.

As new technical and technological advancements are made, there is an incentive to conduct new surveys, which promise better geophysical data quality and stronger assurances of continuous, reliable yields of offshore oil and gas.

An example of the impracticality of the “duplicative” survey notion can be readily seen when applying the same concept to something more familiar to all of us, the automobile. One could argue that a car is simply four wheels and an enclosed space for the driver and passengers, so who needs different makes and models of cars? Because drivers have different needs (fuel economy, space, etc.), there are a variety of vehicles offered and purchased. One vehicle does not fit everyone's needs. Similarly, E&P companies purchase a variety of data sets from G&G companies to meet their varying needs.

Thus, in reality, there are no duplicative surveys because no two surveys are alike. And, no two surveys are alike because the exploration companies demand that they have the option to select the survey that focuses the most clearly on their prospects in view of the value they perceive.

## *IAGC Vision Statement*

*The IAGC's vision is to be the most credible and effective voice for promoting and ensuring a safe, environmentally responsible and competitive geophysical industry.*