



NO STREET ADDRESS? NO PROBLEM!

INTRODUCTION

Work sites don't always have street addresses. Oil and gas rigs, pipelines, new construction sites, cell towers and power transmission facilities are usually located well off the beaten path. The only way to pinpoint their location is using their latitude and longitude coordinates.

Since the 1400's latitude and longitude have helped mariners find their way across the sea and map makers chart the locations of geological formations, bodies of water and our cities and towns. Today, latitude and longitude coordinates are also used in mobile field service management solutions to help technicians navigate to, and get information about, work to be performed in remote areas. Latitude and longitude, when combined with a mobile field service management solution also enable technicians to access customer information - including local contacts, equipment, equipment repair history for work sites without a street address.

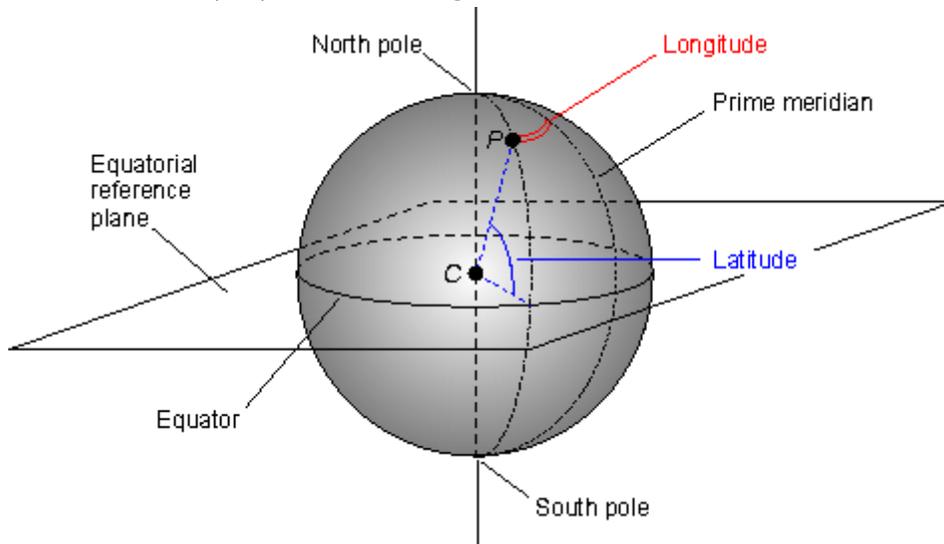
Following is a brief history of the development of latitude and longitude as a method for pinpointing locations as well as an overview of how FieldAware uses latitude and longitude to help mobile field workers perform their jobs faster and more efficiently.

LATITUDE AND LONGITUDE, A HISTORY

Beginning in the early 1400's (when scientists and explorers finally determined that the earth was indeed a sphere), mariners and explorers sought to find a simple and scientific way to determine where they were - and where they might want to go. Latitude and longitude were the answer.

Lines of longitude or meridians are the vertical lines running from the South Pole to the North Pole. Lines of latitude or parallels are the horizontal lines running from the west to the east.

Latitude (parallels) and longitude (meridians) are angles that uniquely define points on the globe. When used together, the angles create a coordinate scheme that enables us to identify any location on the globe.



Source: whatis.com

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Latitude

When compared to the complexities of longitude, it was easy for scientists and explorers to determine latitude. Using the equator as a reference point, they divided the sphere horizontally in 69 mile (111 km) increments - parallel to the equator (reference point). Parallels above the equator are positive, those below negative. Angles can range from +90 degrees (north) to -90 degrees (south). Latitudes of +90 and -90 degrees correspond to the north and south geographic poles on the earth.

Mariners and explorers could determine their position vis-a-vis latitude fairly easily. All they had to do was observe the inclination of the sun or the position of known stars in the sky. From that, they could calculate the angular distance from the horizon to their position. Voila! They could figure out their position from a north/south perspective.

Longitude

Longitude was much trickier to figure out. In the 1400's, explorer Amerigo Vespucci (for whom America is named) measured and compared the positions of the moon and Mars with their predicted positions over several nights at the same time. From these measurements, Vespucci could roughly estimate where he was - from an east/west perspective.

Galileo, in the 1600's offered a better solution. He posited that longitude could be measured using two clocks. Since it takes the earth 24 hours to make a full, 360 degree rotation, you could divide the globe by 24 hours and find a point on earth that travels 15 degrees of longitude every hour. With an accurate clock at sea a comparison of two clocks would determine longitude. One clock at the home port, the other on the ship. The clock on the ship would have to be reset to local noon each day. The time difference would then indicate the longitudinal difference traveled where one hour represented a 15 degree change in longitude.

Accurate clocks were the problem with Galileo's method. It was difficult to keep a clock accurate while at sea using clock technology (gears and weights) of the time. However, in 1728 clock maker John Harrison began building clocks designed to stand up to the rigors of sea voyages - and remain accurate. He produced the first marine chronometer (called Number 4) in 1760. In 1761 his chronometer was tested and found to be accurate. Harrison's chronometer made it possible to finally measure longitude at sea and on land.

However, a final hurdle remained. The world had to agree on where the reference point (home port) for longitude measurements would reside. That agreed upon point (called the Prime Meridian) passes through the Royal Observatory in Greenwich, England. It serves as the reference point and is designated as zero degrees.

The other important longitudinal marker is the International Date Line which is the 180 degree meridian on the opposite side of the earth. It is the point where the eastern and western hemispheres meet. It is also the place where each day officially begins.

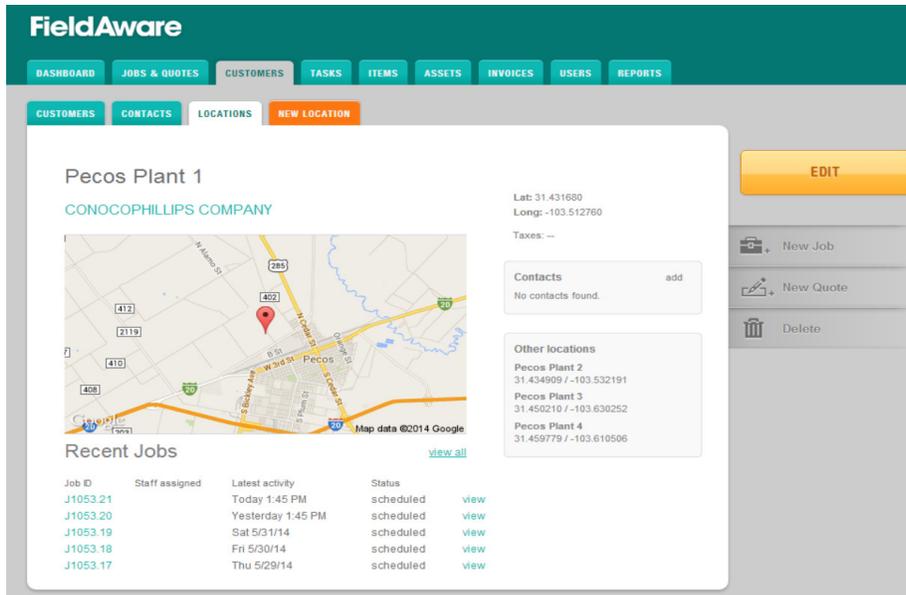
Longitude is based on an agreed upon reference point (the Prime Meridian) which passes through the Royal Observatory in Greenwich, England. It is designated as zero degrees longitude.

LATITUDE AND LONGITUDE TODAY

Today, latitude and longitude are measured using atomic clocks and satellite-based GPS (Global Positioning Systems). Longitude is now divided into degrees, minutes and seconds where 60 minutes equals one degree and 60 seconds a minute. Using latitude and longitude we can now locate cities and buildings - oil rigs and cell tower sites to within inches of their actual location. For example, the Taj Mahal, located in Agra India has a coordinate set of 27 degrees, 10 minutes 29 seconds N (latitude), 78 degrees 2 minutes 3 seconds E (longitude).

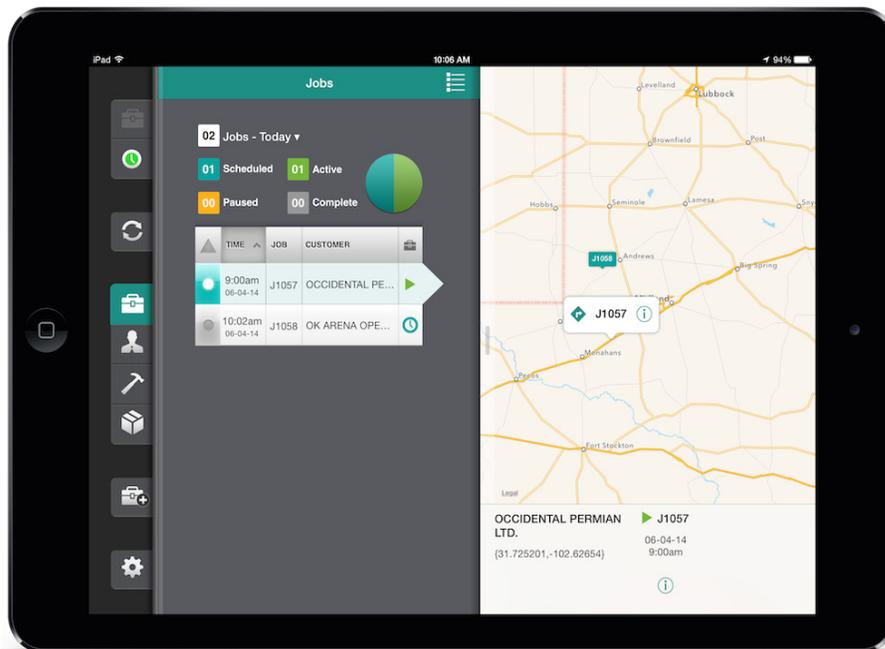
LATITUDE AND LONGITUDE IN FIELDWARE

FieldAware enables companies to use latitude and longitude - or standard street addresses to designate a customer or internal locations. As illustrated below, FieldAware's web app enables back office personnel to view, and see all information associated with, locations that are defined using latitude/longitude.



FieldAware enables field technicians to use latitude and longitude to see the location of any site on land or at sea. For land-based locations, technicians can also get turn-by-turn directions on any iOS or Android smartphone or tablet.

Field technicians can also view, or enter new, site locations using latitude and longitude coordinates. And, when accessing land-based locations, latitude and longitude can be used to view turn-by-turn directions to the location (where roads exist).



CONCLUSION

For locations where no street address exists, latitude and longitude can be used to determine a site's location - to within inches! And with FieldAware, companies - and their remote technicians - can view comprehensive information about, and dispatch work to, any location on land or at sea - as well as filter views by location, technician(s), customer or job status.

ABOUT FIELDWARE

We are re-shaping the field service industry! Our made-for-mobile, cloud-based software was designed from the ground up to provide ease of use with incredible flexibility – a combination that enables field service organizations to amaze their customers, astonish the staff and surprise the competition. Our software was designed as a mobile platform, with no incumbent legacy technologies.

Based on our founders' intimate knowledge of the unique needs of engineers and technicians in the field – and the operational personnel and management that support them – FieldAware is focused on providing field service organizations, both large and small, with:

- Intelligence about your customers: So you can increase revenue, expand into new markets, differentiate your services and create customer advocates.
- Intelligence about your business: That enables you to increase the productivity of your staff (and keep them happy!), use company resources more efficiently, simplify your business processes and “right size” your parts and repair inventory.
- We combine our software with the industry's best implementation, on-boarding and support services enabling companies to take full and rapid advantage of today's mobile environment.

To learn more about our solutions or to schedule a demo, contact your local FieldAware representative at fieldawaresales@fieldaware.com or by calling 800.935.0736 (U.S., and Canada), 0808.134.9941 (United Kingdom), 1800.948.852 (Ireland), 1.800.249.906 (Australia), 0.800.999.037 (South Africa) or 0800.001286 (New Zealand).
