Transcript: What's Hidden Under the Ice of Antarctica?

Video ID: KOnB47PyZJw

Extraction Date: 2025-04-02 06:46:19

**[00:00:00]** Antarctica is easily the least

**[00:00:01]** understood and the most mysterious of

**[00:00:03]** All Earth's continents in the 21st

**[00:00:05]** century it's such a poorly understood

**[00:00:07]** place that most people alive today still

**[00:00:09]** don't even really have a solid grasp

**[00:00:11]** about Antarctica's true size or shape

**[00:00:14]** something that's probably not really

**[00:00:15]** helped by our perception of Antarctica

**[00:00:17]** as this sprawling misshapen blob that we

**[00:00:19]** always see stretching across the bottom

**[00:00:21]** of our two-dimensional Maps if it's even

**[00:00:23]** displayed on the map at all in reality

**[00:00:25]** Antarctica is the world's fifth largest

**[00:00:27]** continent exceeding the sizes of austral

**[00:00:29]** Australia and Europe and being closer in

**[00:00:31]** size to South America than any other

**[00:00:33]** continent the true scale of Antarctica

**[00:00:35]** can be revealed when overlaying it at

**[00:00:37]** top a continent that were more familiar

**[00:00:38]** with like North America Antarctica is

**[00:00:41]** significantly larger than the mainland

**[00:00:42]** Continental 48 US states with the

**[00:00:45]** distance from the Antarctic Peninsula to

**[00:00:47]** the other side of the continent is as

**[00:00:48]** far as the Canadian Arctic islands are

**[00:00:50]** to Mexico and placed over Europe

**[00:00:52]** Antarctica would stretch from the far

**[00:00:54]** Northern reaches of Norway and Finland

**[00:00:56]** down to Iran and Iraq in the Southeast

**[00:00:58]** and well past Ireland into the

**[00:01:00]** Mid-Atlantic to the West it's a

**[00:01:02]** genuinely massive place and it's also

**[00:01:04]** almost completely empty and absent from

**[00:01:06]** human life the human population of

**[00:01:09]** Antarctica ranges from as many as 4,000

**[00:01:11]** people during the warmer Antarctic

**[00:01:13]** summer months to as few as only a

**[00:01:15]** thousand people during the long dark and

**[00:01:17]** savagely cold Antarctic Winters when the

**[00:01:20]** darkness of night envelops the entire

**[00:01:22]** continent for months straight and the

**[00:01:24]** temperatures plummet to beneath - 34° c

**[00:01:27]** continent wide but it's not just the bru

**[00:01:29]** brutal weather of Antarctica that keeps

**[00:01:31]** its population low it's also just an

**[00:01:33]** insanely remote place that's really

**[00:01:36]** difficult to get yourself to it's

**[00:01:38]** located down at the bottom of the globe

**[00:01:39]** and the closest large human settlement

**[00:01:41]** to the continent is usua in Far Southern

**[00:01:44]** Argentina which is still about a th000

**[00:01:46]** km away from the tip of the Antarctic

**[00:01:48]** Peninsula despite this closeness however

**[00:01:50]** the distance between usua and Antarctica

**[00:01:52]** is separated by the infamous Drake

**[00:01:54]** Passage an expanse of water that is

**[00:01:56]** perhaps the roughest and most dangerous

**[00:01:58]** part of the world's ocean

**[00:02:00]** here at the bottom of the civilizational

**[00:02:02]** world between the continents the

**[00:02:04]** Southern and Pacific Oceans flow

**[00:02:05]** unobstructed into the Atlantic

**[00:02:07]** representing the only location in the

**[00:02:09]** southern hemisphere where winds and

**[00:02:11]** ocean currents can each flow around the

**[00:02:13]** entire world without any obstruction

**[00:02:15]** from Land allowing them to violently

**[00:02:17]** whip around the world continually and

**[00:02:19]** keep picking up speed and strength as

**[00:02:22]** they go this combined with a collision

**[00:02:24]** of warmer water in the north and colder

**[00:02:26]** water in the South result in powerful

**[00:02:28]** waves in the Drake Passage that can

**[00:02:30]** climb up to nearly 20 M or 65 ft High

**[00:02:33]** during extreme weather scenarios with

**[00:02:36]** the rough conditions through the Drake

**[00:02:37]** Passage and the vast distances between

**[00:02:39]** Antarctica and the other nearby

**[00:02:41]** continents of Africa and Australia it's

**[00:02:43]** no wonder that human eyes most likely

**[00:02:45]** never even saw the Frozen continent at

**[00:02:47]** all until the 19th century when a

**[00:02:50]** Russian ship made the first ever

**[00:02:51]** recorded discovery of Antarctica in 1820

**[00:02:54]** even today more than 2 centuries later

**[00:02:57]** we still understand precious little

**[00:02:59]** about this ice olated continent

**[00:03:01]** especially anything about what's

**[00:03:02]** possibly beneath the Titanic antarctic

**[00:03:04]** ice sheet ice covers more than 98% of

**[00:03:08]** the Antarctic continent's surface

**[00:03:09]** leaving very few exposed areas of land

**[00:03:12]** above the ice that we can actually

**[00:03:13]** observe with our own eyes on average

**[00:03:16]** across the entire continent the

**[00:03:17]** Antarctic ice sheet stretches more than

**[00:03:19]** 2 km thick from the surface we can

**[00:03:21]** observe down to the surface of the

**[00:03:23]** actual Continental land mass but at its

**[00:03:25]** thickest points the ice on Antarctica

**[00:03:28]** can reach upwards of nearly 5 K

**[00:03:30]** thick which is nearly as thick as six of

**[00:03:32]** the bir khalifas in Dubai the world's

**[00:03:34]** tallest building all stacked on top of

**[00:03:37]** each other this is why 61% of all the

**[00:03:39]** freshwat on the planet is locked away in

**[00:03:42]** Antarctica's ice sheet and if the entire

**[00:03:44]** thing melted away into its liquid form

**[00:03:46]** it would probably end up raising Global

**[00:03:48]** sea levels by around 60 M which would be

**[00:03:51]** enormously catastrophic and result in

**[00:03:54]** the total obliteration of Florida and

**[00:03:56]** most of the US Gulf and East coasts the

**[00:03:59]** ice sheet of Antarctica is so thick and

**[00:04:01]** impenetrable that it's widely accepted

**[00:04:03]** that we know more about the surface of

**[00:04:05]** far away worlds like Mars today than

**[00:04:07]** what's actually beneath the Antarctic

**[00:04:09]** ice sheet on the real surface of

**[00:04:10]** Antarctica rather than drilling through

**[00:04:13]** kilometers of ice to see what's beneath

**[00:04:15]** it the primary way that we've been able

**[00:04:17]** to sort of visualize what's beneath the

**[00:04:19]** ice on the continent is by flying planes

**[00:04:21]** over it and shooting radio waves down

**[00:04:23]** into the ice below and then analyzing

**[00:04:25]** how the waves Echo back up to the plane

**[00:04:27]** a process that's known as radio Echo

**[00:04:29]** sounding but the Antarctic continent is

**[00:04:31]** of course a much larger place than even

**[00:04:34]** Europe is and so flying planes doing

**[00:04:37]** this technique over the entire continent

**[00:04:39]** would be a brutally painstaking

**[00:04:41]** expensive and time-consuming process so

**[00:04:44]** as it stands now we only have a limited

**[00:04:46]** idea of what's beneath the Frozen

**[00:04:48]** continent based on the few radio Echo

**[00:04:50]** sounding flights we've actually done

**[00:04:51]** across it so far and it's estimated that

**[00:04:53]** more than 90% of the continent beneath

**[00:04:56]** the ice remains unmapped and unknown but

**[00:04:59]** the small small amount of information we

**[00:05:00]** already do know about what's beneath the

**[00:05:02]** world's largest ice sheet on the world's

**[00:05:04]** most mysterious continent is already

**[00:05:07]** incredibly fascinating for starters we

**[00:05:10]** already know that Antarctica isn't

**[00:05:12]** really a unified land mass beneath the

**[00:05:14]** ice like it appears to us above the ice

**[00:05:16]** were all of the continents ice sheet to

**[00:05:18]** melt or be removed the Antarctic

**[00:05:20]** continent's true shape would be revealed

**[00:05:21]** to us what we currently know is the

**[00:05:23]** Antarctic peninsula in reality would

**[00:05:25]** emerge as a completely separate

**[00:05:27]** archipelago of mountainous islands that

**[00:05:28]** has sometimes been referred to as lesser

**[00:05:31]** Antarctica While most of the rest of the

**[00:05:32]** continent known as greater Antarctica

**[00:05:34]** would remain above the ocean surface and

**[00:05:36]** be roughly the same size as Australia

**[00:05:39]** each of these two different halves of

**[00:05:40]** Antarctica one archipelagic and one

**[00:05:42]** Continental would become this way

**[00:05:44]** because of their radically different

**[00:05:46]** geologies and histories the area of

**[00:05:48]** Greater Antarctica or the Eastern side

**[00:05:50]** of the continent is known to consist of

**[00:05:52]** more ancient ignas and metamorphic rocks

**[00:05:54]** while the more archipelagic lesser

**[00:05:56]** Antarctica is much younger and made up a

**[00:05:58]** sedimentary and vol volcanic rocks

**[00:06:00]** instead fascinatingly lesser Antarctica

**[00:06:03]** belongs to the Great Pacific Ring of

**[00:06:05]** Fire a continuous belt of tectonic fault

**[00:06:08]** lines and active volcanoes that spans

**[00:06:10]** nearly the entire perimeter of the

**[00:06:12]** Pacific Ocean and which has existed for

**[00:06:14]** about the past 35 million years as a

**[00:06:17]** result most of the archipelagos and

**[00:06:18]** islands that exist in lesser Antarctica

**[00:06:20]** are volcanic in nature despite their

**[00:06:23]** appearances of Frozen ice and Glaciers

**[00:06:25]** on top of them Mount arabus far to the

**[00:06:27]** east in Antarctica is the highest active

**[00:06:29]** volcano on the continent and the

**[00:06:30]** southernmost active volcano on the

**[00:06:32]** planet complete with a lake of molten

**[00:06:35]** lava within its inner summit crater that

**[00:06:37]** has been observable since the 1970s and

**[00:06:39]** the last erupted only a few years ago in

**[00:06:42]** 2020 the average yearr round temperature

**[00:06:44]** around where Mount arabus is located

**[00:06:46]** remains around -7° C and during the

**[00:06:50]** Antarctic winter months between April

**[00:06:51]** and September the temperature will never

**[00:06:53]** climb above -20 C and it'll sink to as

**[00:06:56]** low as - 62° c in August cold enough to

**[00:07:00]** cause frostbite to expose Skin Within

**[00:07:02]** minutes or to instantly freeze water if

**[00:07:05]** you were to pour out a bowl of hot water

**[00:07:07]** in the air at these temperatures it

**[00:07:08]** would turn to snow before it even hit

**[00:07:10]** the ground this is an environment that

**[00:07:13]** is incredibly hostile to life where you

**[00:07:15]** wouldn't expect to find very much of it

**[00:07:17]** and yet just beneath the surface of

**[00:07:19]** Mount arabus is an entire new world that

**[00:07:22]** we've only just started to come to

**[00:07:24]** understand decades and centuries worth

**[00:07:26]** of hot steam produced by the mount

**[00:07:28]** arabis volcano have carved out a network

**[00:07:30]** of tunnels through the ice beneath the

**[00:07:32]** mountain Within These subvolcanic Ice

**[00:07:35]** Caves the temperatures are known to

**[00:07:36]** reach as high as 25° C or about 77 F

**[00:07:41]** warm enough for you or me to hang out

**[00:07:42]** down there in a t-shirt and shorts and

**[00:07:44]** be comfortable doing it despite being in

**[00:07:46]** the middle of Antarctica and that means

**[00:07:49]** that the antartic subvolcanic cave

**[00:07:50]** systems could be warm enough to host all

**[00:07:53]** kinds of life that we may not even be

**[00:07:55]** aware of yet back in 2017 a team led by

**[00:07:58]** the Australian National University

**[00:08:00]** acquired a sample of the soil within one

**[00:08:02]** of these cave systems beneath Mount

**[00:08:03]** arabus and after analyzing its

**[00:08:05]** composition they discovered that the

**[00:08:07]** soil contain DNA traces of things like

**[00:08:09]** algae and mosses but most tantalizing of

**[00:08:12]** all DNA traces of small animals that

**[00:08:14]** might be living down there as well in a

**[00:08:16]** sub Antarctic Oasis Of Life most of

**[00:08:19]** these animal rated DNA traces they found

**[00:08:21]** were similar to species that we already

**[00:08:23]** know of living up on the surface but not

**[00:08:25]** all of them some of the traces couldn't

**[00:08:27]** be linked to species we already know

**[00:08:29]** about but were most closely related to

**[00:08:32]** anthropods species like shrimp

**[00:08:34]** centipedes or spiders meaning that there

**[00:08:36]** could be anthropod like species down in

**[00:08:38]** these warm caves beneath Mount arabus

**[00:08:40]** that remain unknown to Mankind and

**[00:08:43]** indeed there are 15 other active or

**[00:08:45]** semi-active volcanoes located across

**[00:08:47]** Antarctica that could contain similar

**[00:08:49]** warm steam carved tunnels and caves

**[00:08:51]** beneath them all as well meaning that

**[00:08:53]** there could be more than a dozen of

**[00:08:55]** these oasis-like ecosystems beneath the

**[00:08:57]** ice of Antarctica that we presently know

**[00:08:59]** virtually nothing about planes flying

**[00:09:02]** over Antarctica with radio Echo sounding

**[00:09:05]** data have revealed a vast landscape

**[00:09:07]** beneath the ice of rolling valleys

**[00:09:09]** riverbeds and Hills similar to the

**[00:09:10]** landscape seen Elsewhere on Earth only

**[00:09:13]** Frozen in time and locked beneath

**[00:09:15]** colomet of ice one of the most

**[00:09:17]** interesting geographic features on the

**[00:09:19]** continent that was only recently

**[00:09:20]** discovered in 2019 however is what we

**[00:09:23]** now know as the deepest canyon anywhere

**[00:09:25]** on the earth's land surface a canyon

**[00:09:27]** that if it wasn't hidden by the ice

**[00:09:29]** above it would put the Grand Canyon in

**[00:09:31]** America to shame within greater

**[00:09:33]** Antarctica beneath the Denman Glacier

**[00:09:35]** exists the canyon that we Now understand

**[00:09:37]** plummets to 3 and 1/2 km deep beneath

**[00:09:40]** the sea level which is just insanely

**[00:09:43]** deep for reference this Canyon in

**[00:09:46]** Antarctica sinks to a depth that is

**[00:09:48]** roughly the same as the average depth of

**[00:09:50]** the Atlantic Ocean and it's roughly half

**[00:09:52]** as deep as Mount Everest is tall the

**[00:09:55]** deepest point below sea level on exposed

**[00:09:57]** land on the planet is the shoreline

**[00:09:58]** around the dead sea between Jordan

**[00:10:01]** Israel and the West Bank and it only

**[00:10:03]** sinks to as low as 413 m beneath sea

**[00:10:06]** level this Canyon in Antarctica sinks

**[00:10:09]** nearly 8 and 1/2 times deeper than that

**[00:10:12]** only in the oceans do Canyons dip deeper

**[00:10:14]** below the surface and we didn't even

**[00:10:16]** know about this super deep Canyon on

**[00:10:19]** Antarctica until 2019 because it's been

**[00:10:22]** covered up by kilometers worth of ice

**[00:10:24]** for millions of years now imagine what

**[00:10:27]** looking out at this Canyon would be like

**[00:10:29]** without without all of the ice obscuring

**[00:10:30]** it but the deepest canyon on the earth

**[00:10:33]** is far from the only interesting

**[00:10:35]** geographic feature that the ice of the

**[00:10:36]** Frozen continent has been hiding from us

**[00:10:38]** in 1958 a team of Soviet researchers in

**[00:10:41]** Antarctica discovered a massive mountain

**[00:10:44]** range beneath the ice sheet that nobody

**[00:10:46]** knew about beforehand that became known

**[00:10:48]** as the gamertv mountain range named

**[00:10:50]** after the Soviet geophysicist gregori

**[00:10:52]** gamertv these mountains are roughly the

**[00:10:55]** same length and height as the Alps in

**[00:10:57]** southern Europe are running for about

**[00:10:59]** 1200 km long with Peaks soaring up to as

**[00:11:02]** much as 2700 M High they're also

**[00:11:05]** completely obscured from the surface

**[00:11:07]** because they are buried beneath more

**[00:11:08]** than 600 M of ice and snow pack and

**[00:11:11]** they're still far from the only

**[00:11:13]** interesting thing hidden beneath the ice

**[00:11:14]** of the

**[00:11:15]** continent in the late 1950s and early

**[00:11:18]** 60s researchers began detecting a large

**[00:11:20]** gravity anomaly in East Antarctica where

**[00:11:22]** the gravity present was weaker than what

**[00:11:24]** would be naturally expected the anomaly

**[00:11:27]** spanned across a huge area beneath

**[00:11:29]** antarctic ice sheet that was about 243

**[00:11:31]** km wide and sunk down to a depth of

**[00:11:33]** about 848 M for decades there were

**[00:11:37]** several hypotheses about what exactly

**[00:11:39]** could be causing this weaker gravity in

**[00:11:41]** the area of East Antarctica until in

**[00:11:43]** 2006 a team of researchers from Ohio

**[00:11:46]** State University using data from

**[00:11:47]** satellites owned by NASA and the German

**[00:11:49]** Aerospace Center managed to identify

**[00:11:51]** what they believed to be an ancient 480

**[00:11:54]** km wide meteorite impact crater that was

**[00:11:57]** buried beneath the ice sheet

**[00:11:59]** but because of the area's extremely

**[00:12:01]** remote location and distance beneath

**[00:12:03]** several kilomet worth of solid ice

**[00:12:06]** there's still to date have never been

**[00:12:08]** any direct samples taken from the area

**[00:12:10]** to actually test for this impact event

**[00:12:12]** hypothesis and so the idea that an

**[00:12:14]** asteroid could have impacted this area

**[00:12:16]** and caused a massive crater in anarctica

**[00:12:19]** is still only a theory for now but a

**[00:12:22]** highly likely Theory

**[00:12:24]** nonetheless If the gravity anomaly here

**[00:12:26]** turns out to indeed be a meteorite

**[00:12:28]** impact crater it would be by far the

**[00:12:30]** largest one ever discovered in the world

**[00:12:32]** with a width that's nearly three times

**[00:12:34]** as large as the chick Club impact crater

**[00:12:36]** in the yukatan peninsula of Mexico that

**[00:12:38]** is believed to have been formed by a 10

**[00:12:40]** km wide asteroid that struck the area

**[00:12:42]** roughly 66 million years ago and likely

**[00:12:45]** contributed to the annihilation of the

**[00:12:46]** dinosaurs in order to create an impact

**[00:12:48]** crater nearly three times larger than

**[00:12:51]** that one in Antarctica the asteroid that

**[00:12:53]** might have hit the area would have had

**[00:12:54]** to have been four to five times larger

**[00:12:56]** than the dinosaur killer asteroid was so

**[00:12:59]** roughly 40 to 50 kilm wide an asteroid

**[00:13:03]** that would have been big enough to

**[00:13:03]** stretch from Central Park in New York

**[00:13:05]** City all the way into Connecticut now

**[00:13:07]** because of effects like erosion impact

**[00:13:10]** craters on the Earth's surface gradually

**[00:13:11]** disappear over time because of this

**[00:13:14]** phenomenon the Ohio State University

**[00:13:15]** researchers who concluded that the

**[00:13:17]** structure hidden beneath the Antarctic

**[00:13:18]** ice sheet was an impact crater believe

**[00:13:21]** that it happened no more than 500

**[00:13:22]** million years ago and no less than 100

**[00:13:25]** million years ago because the structure

**[00:13:27]** seems to also have been geographically

**[00:13:29]** disturbed by the rift valley in the area

**[00:13:31]** that only formed around a 100 million

**[00:13:33]** years ago during the separation of

**[00:13:34]** Antarctica and Australia from the

**[00:13:36]** ancient gondwana superc continent and

**[00:13:39]** that timeline between 100 and 500

**[00:13:41]** million years ago is extremely

**[00:13:43]** interesting because it potentially lines

**[00:13:46]** up more or less with the greatest mass

**[00:13:48]** extinction event that ever happened in

**[00:13:50]** our planet's history the perian Triassic

**[00:13:53]** Extinction event that took place

**[00:13:55]** sometime around

**[00:13:56]** 21.9 million years ago an a

**[00:13:59]** apocalyptically traumatizing event that

**[00:14:00]** is also often referred to as the great

**[00:14:03]** dying something happened on our planet

**[00:14:06]** all that time ago that quickly

**[00:14:08]** annihilated 57% of all biological

**[00:14:10]** families that existed at the time

**[00:14:12]** including a wipe out of 81% of the

**[00:14:15]** Earth's marine species and 70% of the

**[00:14:17]** Earth's land-based vertebrate species it

**[00:14:19]** is by far the biggest mass extinction

**[00:14:22]** event that ever took place on the planet

**[00:14:24]** and we still don't have a precise

**[00:14:25]** explanation of what exactly happened

**[00:14:27]** that caused it but it could just be that

**[00:14:30]** the deep and mysterious antarctic ice

**[00:14:32]** sheet has been hiding the cause of the

**[00:14:34]** Great dying from us this entire time if

**[00:14:37]** indeed it turns out that the East

**[00:14:38]** Antarctic gravity anomaly is truly the

**[00:14:41]** biggest impact crater that we have ever

**[00:14:43]** discovered and it's been even further

**[00:14:45]** hypothesize that if it really was an

**[00:14:46]** impact event that caused it it could

**[00:14:48]** have been so massive and destructive

**[00:14:50]** that it directly contributed to the

**[00:14:52]** breakup of the gandana supercontinent by

**[00:14:55]** severely weakening the crust at the

**[00:14:57]** location of impact which eventually led

**[00:14:59]** to the separation of that ancient

**[00:15:00]** continent between Antarctica Australia

**[00:15:02]** and

**[00:15:03]** India also hidden beneath the surface of

**[00:15:05]** the vast Antarctica I sheet are around

**[00:15:08]** 675 liquid subglacial Lakes the

**[00:15:11]** researchers have only started

**[00:15:12]** discovering since the 1990s little more

**[00:15:15]** than only three decades ago several of

**[00:15:17]** these liquid Lakes have been discovered

**[00:15:18]** Deeper Than 3 kilm beneath the surface

**[00:15:20]** of the Antarctic ice sheet and by far

**[00:15:23]** the largest of them discovered to date

**[00:15:24]** is the infamously mysterious Lake VTO

**[00:15:27]** which was only discovered by a team of

**[00:15:29]** Russian researchers in the east of the

**[00:15:30]** continent in the early 1990s and its

**[00:15:33]** Discovery wasn't announced to the

**[00:15:34]** general public until it was published in

**[00:15:36]** the scientific journal Nature in

**[00:15:38]** 1996 it turns out the lake VTO is a

**[00:15:42]** massive body of liquid water that exists

**[00:15:44]** about 4 kilm deep beneath the surface of

**[00:15:46]** the Antarctic ice sheet and by the

**[00:15:48]** volume of water contained within the

**[00:15:50]** lake lake VTO is surprisingly the sixth

**[00:15:53]** largest known lake in the world

**[00:15:55]** containing an amount of water within it

**[00:15:57]** that is even greater than that of Lake

**[00:15:59]** Michigan in the United States and we

**[00:16:01]** didn't even know about it at all until

**[00:16:02]** the same year that Tiger Woods made his

**[00:16:05]** professional debut at the PGA Tour

**[00:16:08]** interestingly the liquid water contained

**[00:16:10]** within Lake VTO is below freezing

**[00:16:12]** temperature maintaining an average of

**[00:16:14]** about -3° C or about 27 F this is

**[00:16:18]** possible because it's believed that

**[00:16:19]** there's a geothermal vent beneath the

**[00:16:21]** Lake's floor that's providing it with

**[00:16:23]** some heat while the pressure from the 4

**[00:16:25]** km of thick ice above the lake reduces

**[00:16:27]** the Ice's melting point and provides the

**[00:16:29]** Lakes water with insulation from the

**[00:16:31]** abominably cold temperatures above it

**[00:16:34]** and while -3° C temperature water is too

**[00:16:37]** cold for most marine life we know of to

**[00:16:39]** survive it's still warm enough for many

**[00:16:41]** other species we know of that have

**[00:16:43]** adapted to extremely cold environments

**[00:16:44]** to thrive in Antarctic Krill ice fish

**[00:16:47]** arctic cod and certain species of sea

**[00:16:49]** stars sea urchins and mollusks that we

**[00:16:51]** already know of are capable of surviving

**[00:16:54]** in extremely cold Subzero Waters so what

**[00:16:57]** mysterious life forms that we're

**[00:16:59]** presently unaware of could be existing

**[00:17:01]** Down Below in the depths of lake vosto

**[00:17:03]** and the hundreds of other Lakes dotted

**[00:17:05]** across Antarctica hidden beneath the ice

**[00:17:07]** sheet Lake VTO is a particularly

**[00:17:09]** interesting case because it's believed

**[00:17:11]** to have been completely sealed off from

**[00:17:13]** the rest of the outside world by the

**[00:17:14]** Antarctic ice sheet for at least the

**[00:17:17]** past 15 million years meaning that if

**[00:17:20]** life exists within the lake it has

**[00:17:22]** evolved in complete separation from

**[00:17:24]** everywhere else in the world for

**[00:17:26]** millions of years now in 2012 a team of

**[00:17:30]** Russian researchers successfully carried

**[00:17:32]** out the first ever drilling from the

**[00:17:34]** surface of the Antarctic ice sheet all

**[00:17:36]** the way down nearly 4 km deep to the

**[00:17:38]** liquid surface of Lake VTO where samples

**[00:17:41]** of the water were taken and carried back

**[00:17:42]** to the surface however this initial

**[00:17:45]** drilling sample taken from the lake by

**[00:17:46]** the Russians has been widely criticized

**[00:17:49]** for not being properly sanitized and as

**[00:17:51]** a result the data they took is known to

**[00:17:53]** be heavily contaminated subsequent

**[00:17:55]** analysis of the Lakes water sample has

**[00:17:57]** revealed kerosene contam ination and

**[00:17:59]** outside bacteria contaminants that were

**[00:18:01]** present on the drill bit before it even

**[00:18:03]** reached the lake

**[00:18:04]** 255 previously known contaminant species

**[00:18:07]** of bacteria have been identified by

**[00:18:09]** researchers in the 2012 Russian Ice

**[00:18:11]** sample since then but they have also

**[00:18:12]** managed to identify at least one

**[00:18:14]** bacteria species from the sample that is

**[00:18:16]** presently unknown and has no matches in

**[00:18:18]** any International databases which the

**[00:18:21]** team hopes is evidence for at least one

**[00:18:23]** unknown bacteria species that exists

**[00:18:25]** down there the Russian team apparently

**[00:18:27]** drilled another second bore hole down

**[00:18:29]** from the surface into Lake VTO in 2015

**[00:18:32]** that they claimed was cleaner and more

**[00:18:33]** properly sanitized that resulted in

**[00:18:35]** another 1 lit sample of Lake V's water

**[00:18:38]** being acquired but the results on that

**[00:18:40]** water to date have never been published

**[00:18:42]** or reported on so it's unclear what if

**[00:18:44]** anything they may have found in it most

**[00:18:47]** researchers involved with Lake VTO

**[00:18:49]** expect that if life actually does exist

**[00:18:50]** down there it'll be limited to simple

**[00:18:52]** life forms like bacteria which might not

**[00:18:54]** really sound all that exciting or sexy

**[00:18:57]** but it could carry with it signific ific

**[00:18:59]** implications for other simple life forms

**[00:19:01]** that might be existing Elsewhere on

**[00:19:03]** other worlds in our own solar system

**[00:19:05]** deep in the liquid oceans we also know

**[00:19:07]** exist beneath kilometers of Frozen ice

**[00:19:09]** on some of the moons of Jupiter and

**[00:19:10]** Saturn like Europa and

**[00:19:12]** Enceladus but there might also just be

**[00:19:15]** the chance that there actually is more

**[00:19:17]** complex life existing down there in Lake

**[00:19:19]** vosto than we might expect in 2020 a

**[00:19:22]** study conducted by researchers kby gura

**[00:19:25]** and Scott Rogers of Lake vosto accretion

**[00:19:27]** ice rather than the liquid water within

**[00:19:29]** the lake itself revealed additional

**[00:19:31]** unknown bacteria species and most

**[00:19:34]** fascinatingly of all an rrna sequence

**[00:19:37]** that was more than 97% similar to that

**[00:19:39]** of a species of rock codfish that is

**[00:19:42]** common along the Antarctic Coastline

**[00:19:44]** representing the first scientific report

**[00:19:46]** of an unknown fish species that could

**[00:19:49]** possibly be existing down within Lake

**[00:19:51]** VTO it would be incredible to one day

**[00:19:54]** see a sea drone with a camera and L

**[00:19:56]** attached to it get deployed down into

**[00:19:57]** Lake vok to see more of what's actually

**[00:19:59]** down there because based on a similar

**[00:20:01]** event that happened just a few years ago

**[00:20:03]** in 2021 the results could indeed be

**[00:20:06]** wildly unexpected in the final days of

**[00:20:08]** December in 2021 a team of scientists

**[00:20:11]** from New Zealand melted a small hole

**[00:20:13]** through a glacier in West Antarctica

**[00:20:15]** here at the cam by stream the team knew

**[00:20:18]** that a large Cavern of liquid water

**[00:20:20]** existed about 500 M beneath the glacier

**[00:20:23]** surface here carved out over time by a

**[00:20:25]** small flowing river beneath the ice but

**[00:20:28]** when the team actually lowered a camera

**[00:20:30]** down into the hole they carved down into

**[00:20:32]** the liquid waterfill Cavern below what

**[00:20:35]** they saw shocked everybody involved they

**[00:20:38]** actually saw animals hundreds of them

**[00:20:41]** swimming around in the isolated Cavern

**[00:20:43]** below the team later identified these

**[00:20:45]** blurry orange blotches to be shrimp-like

**[00:20:47]** Marine crustations called aods and here

**[00:20:50]** in this cold isolated Cavern of water

**[00:20:53]** 500 M beneath the ice and a whopping 500

**[00:20:56]** km away from the nearest sunlight locked

**[00:20:59]** in complete darkness were hundreds of

**[00:21:02]** these more complex life forms absolutely

**[00:21:04]** thriving practically nobody expected to

**[00:21:07]** find that much life down here and so

**[00:21:10]** what implications does that 2021

**[00:21:12]** Discovery have for what unknown life may

**[00:21:14]** be existing within Lake VTO or within

**[00:21:16]** any of the hundreds of other Lakes

**[00:21:18]** locked beneath the Antarctic ice sheet

**[00:21:20]** that we haven't ever seen so far the

**[00:21:22]** area of the West Antarctic ice sheet

**[00:21:24]** spans across a vast area that is roughly

**[00:21:27]** the same size as Mexico and yet to this

**[00:21:29]** date Humanity has only managed to

**[00:21:32]** actually witness a fraction of the

**[00:21:34]** unknown world that exists beneath the

**[00:21:36]** ice here a few dozen small B holes

**[00:21:39]** dotted around the region that has

**[00:21:40]** exposed a disjointed area to us only

**[00:21:43]** about the size of a regulation

**[00:21:45]** basketball court the world beyond that

**[00:21:47]** basketball court in an area that's the

**[00:21:49]** size of Mexico remains unobserved

**[00:21:51]** unknown and mysterious and I deeply want

**[00:21:55]** to know more about it and in addition to

**[00:21:58]** all the unknown life and geographic

**[00:22:00]** features that probably exists beneath

**[00:22:02]** the Antarctic ice sheet there's also

**[00:22:04]** almost certainly a vast amount of

**[00:22:06]** undiscovered and completely untapped

**[00:22:09]** natural resources beneath the ice sheet

**[00:22:11]** that Humanity will likely begin to

**[00:22:13]** deeply covet one day soon as well for

**[00:22:16]** decades it has been theorized that

**[00:22:17]** Antarctica is likely home to massive

**[00:22:20]** deposits of energy resources like oil

**[00:22:22]** and gas and coal owing to the fact that

**[00:22:24]** for hundreds of millions of years in the

**[00:22:26]** past the continent was not frozen and

**[00:22:28]** existed in a warmer part of the world

**[00:22:30]** that likely contained eons worth of

**[00:22:32]** animal and plant life it was only around

**[00:22:34]** 35 million years ago that Antarctica

**[00:22:37]** drifted far enough South to begin

**[00:22:38]** acquiring its ice sheet and for hundreds

**[00:22:41]** of millions of years before that it

**[00:22:42]** never had any allowing plenty of time

**[00:22:45]** for complex life to evolve and die and

**[00:22:47]** gradually transform into hydrocarbons

**[00:22:49]** like petroleum over the eons but it

**[00:22:51]** wasn't until just a few months ago

**[00:22:53]** before this video was published in May

**[00:22:55]** of 2024 that we had any idea of the

**[00:22:58]** actual potential extent of these

**[00:23:00]** Antarctic oil and gas reserves early

**[00:23:02]** that month evidence presented to the UK

**[00:23:05]** parliament in London revealed that a

**[00:23:07]** Russian research ship operating in the

**[00:23:09]** wed sea region between the Antarctic

**[00:23:11]** peninsula in the west and greater

**[00:23:12]** Antarctica in the East discovered a

**[00:23:15]** truly gargantuan oil field there

**[00:23:17]** estimated to contain a deposit of

**[00:23:19]** approximately

**[00:23:20]** 511 billion barrels which is an

**[00:23:24]** absolutely absurd amount of oil for

**[00:23:27]** reference the oil contained within this

**[00:23:29]** one Antarctic superfield is roughly

**[00:23:31]** double the amount of oil reserves

**[00:23:33]** controlled by Saudi Arabia or put

**[00:23:35]** another way the oil in this Antarctic

**[00:23:37]** super field is roughly 10 times the

**[00:23:39]** amount of oil that the entire North Sea

**[00:23:41]** has collectively produced over the past

**[00:23:43]** 50 years British members of parliament

**[00:23:46]** cautioned in 2024 that the Russian

**[00:23:48]** Discovery here could become a Prelude to

**[00:23:51]** countries or companies hauling in their

**[00:23:53]** offshore drilling platforms to exploit

**[00:23:55]** the field and most alarmingly of all the

**[00:23:58]** Discover was made directly in the

**[00:23:59]** epicenter of the most widely disputed

**[00:24:01]** part of the Frozen continent that is

**[00:24:03]** simultaneously claimed by the United

**[00:24:05]** Kingdom in Argentina and partially by

**[00:24:07]** Chile as well but for now straight up

**[00:24:10]** drilling for oil in the wetle sea here

**[00:24:12]** is illegal under international law

**[00:24:14]** because of something known as the

**[00:24:16]** Antarctic treaty an international treaty

**[00:24:18]** that has its origins in the mid 20th

**[00:24:20]** century you see up until the late 1950s

**[00:24:23]** Antarctica was theoretically a

**[00:24:24]** free-for-all land open to exploitation

**[00:24:26]** settlement and colonization from anyone

**[00:24:28]** brave enough to try it it was simply the

**[00:24:31]** continent's extremely remote location

**[00:24:32]** and extremely hostile environment that

**[00:24:34]** kept most people from Ever trying but

**[00:24:37]** not everyone seven countries officially

**[00:24:40]** staked out their own territorial claims

**[00:24:42]** to Antarctic territory during the early

**[00:24:43]** 20th century including New Zealand

**[00:24:45]** Australia France and Norway and the

**[00:24:47]** sharply competing overlapping claims of

**[00:24:50]** the United Kingdom Argentina and Chile

**[00:24:52]** all of these countries territorial

**[00:24:54]** claims in Antarctica were based on their

**[00:24:56]** pre-existing legal claims or control of

**[00:24:58]** territory nearby to Antarctica such as

**[00:25:00]** New Zealand's and Australia's home

**[00:25:02]** territories France is relatively nearby

**[00:25:04]** cro and kulan islands and Norway's

**[00:25:07]** bouvet Island similarly the UK's claimed

**[00:25:10]** territory in Antarctica largely came out

**[00:25:12]** of an extension of their claims to the

**[00:25:13]** fauland islands along with South Georgia

**[00:25:15]** and the South Sandwich Islands nearby

**[00:25:18]** while Argentina's almost identical

**[00:25:19]** overlapping claim to Antarctica was

**[00:25:21]** based not only on their own territorial

**[00:25:23]** Mainland but also on their identical

**[00:25:25]** competing claims to the same Islands

**[00:25:27]** claimed by Britain the fauland along

**[00:25:29]** with South Georgia and the South

**[00:25:31]** Sandwich Islands while Chile's

**[00:25:33]** territorial claims were also based on

**[00:25:34]** the proximity of their Mainland

**[00:25:36]** territory the territorial disputes on

**[00:25:38]** Antarctica itself between the UK

**[00:25:40]** Argentina and Chile and between

**[00:25:42]** Argentina and the UK over all of these

**[00:25:43]** other Islands was heating up in the mid

**[00:25:45]** 20th century and risked escalating into

**[00:25:48]** violence and So within the context of

**[00:25:50]** the greater cold war that was going on

**[00:25:52]** between the United States and the Soviet

**[00:25:53]** Union at the time a group of 12

**[00:25:55]** countries got together in 1959 and

**[00:25:57]** signed the Antarctic treaty which

**[00:25:59]** primarily sought to figuratively freeze

**[00:26:01]** the antartic continent in a sort of

**[00:26:02]** stasis just as it was and prevent the

**[00:26:04]** use of the continent for any military

**[00:26:06]** purposes while preserving it for

**[00:26:08]** scientific research and access military

**[00:26:10]** operations on Antarctica were agreed by

**[00:26:12]** everyone to be severely restricted

**[00:26:14]** nuclear tests and detonations as well as

**[00:26:16]** dumping of nuclear waste on Antarctica

**[00:26:18]** were all agreed to be banned and a

**[00:26:20]** powerful independent monitoring system

**[00:26:21]** was put into place that enabled any

**[00:26:23]** country to inspect any other country's

**[00:26:25]** facilities on the continent without

**[00:26:26]** warning to make sure they were actually

**[00:26:28]** abiding by all of the terms of the

**[00:26:29]** treaty Antarctica as defined by the

**[00:26:32]** treaty consists of all the land ice

**[00:26:34]** islands and ocean below the 60 degrees

**[00:26:36]** of latitude line the seven countries who

**[00:26:38]** had already made territorial claims to

**[00:26:40]** Antarctica before the treaty was signed

**[00:26:42]** had their claims Frozen and they became

**[00:26:43]** legally unenforceable the US and the

**[00:26:45]** Soviet Union and later Russia reserved

**[00:26:47]** themselves the right to stake out their

**[00:26:49]** own territorial claims to Antarctica at

**[00:26:51]** some undetermined point in the future

**[00:26:53]** will any country from around the world

**[00:26:54]** was eligible to join the treaty and

**[00:26:56]** establish research bases on the

**[00:26:57]** continent wherever they deemed fit

**[00:26:59]** regardless of any other country's

**[00:27:01]** territorial claims and perhaps most

**[00:27:03]** importantly the treaty explicitly

**[00:27:05]** forbids the harvesting of any of

**[00:27:07]** Antarctica's potential resources or even

**[00:27:09]** prospecting for the continent's

**[00:27:10]** potential resources no mining or

**[00:27:13]** drilling for resources on Antarctica

**[00:27:15]** have been allowed ever since as a result

**[00:27:17]** up to the present day in 2024 there are

**[00:27:20]** dozens of active research stations and

**[00:27:22]** bases dotted all across the Antarctic

**[00:27:23]** continent that belong to no less than 55

**[00:27:26]** different countries from all around the

**[00:27:27]** world many of them being within the

**[00:27:29]** zones of the continent's territory

**[00:27:31]** that's theoretically claimed by other

**[00:27:32]** countries the United States runs by far

**[00:27:35]** the biggest base on the continent at

**[00:27:36]** McMurdo within the part of the continent

**[00:27:38]** that's claimed by New Zealand during the

**[00:27:40]** warmer summer months McMurdo can host up

**[00:27:42]** to 1,500 residents which is also about a

**[00:27:45]** third of the entire human population

**[00:27:47]** that's on Antarctica during those months

**[00:27:50]** the US also runs the amonson Scott

**[00:27:52]** research station at the geographical

**[00:27:53]** South Pole and while the dozens of other

**[00:27:56]** Count's bases are located all across the

**[00:27:58]** rest of the continent most of them are

**[00:27:59]** heavily concentrated in the relatively

**[00:28:01]** warmer Antarctic Peninsula that

**[00:28:03]** stretches up towards the southern tip of

**[00:28:05]** South America Argentina and Chile

**[00:28:07]** however as the two countries that are

**[00:28:09]** geographically the closest ones to

**[00:28:11]** Antarctica have put much more effort

**[00:28:13]** than any of the others into actually

**[00:28:14]** solidifying their territorial claims to

**[00:28:16]** the continent they are the only two

**[00:28:19]** countries who have so far gone to the

**[00:28:20]** lengths of actually establishing

**[00:28:22]** permanent civilian settlements on the

**[00:28:24]** Frozen continent the argentinians at

**[00:28:26]** esparanza base on the antartic Peninsula

**[00:28:28]** and the Chileans nearby the peninsula on

**[00:28:30]** King George Island with their Vias

**[00:28:33]** estras the populations of each of these

**[00:28:35]** settlements only ranges from a few dozen

**[00:28:37]** in the winters to only a little more

**[00:28:39]** than a hundred in the Summers which is

**[00:28:41]** interestingly roughly equal to the

**[00:28:43]** population of the first permanent Colony

**[00:28:45]** that the English established in America

**[00:28:47]** at Rano back in the 16th century in the

**[00:28:49]** 1970s and 80s the Argentinian and

**[00:28:52]** Chilean governments both began sending

**[00:28:54]** pregnant women to their settlements in

**[00:28:56]** Antarctica so that they would give birth

**[00:28:57]** to Argentinian and Chilean citizens on

**[00:28:59]** Antarctic soil and therefore strengthen

**[00:29:02]** their National claims to the territories

**[00:29:04]** of Antarctica that they claimed

**[00:29:05]** sovereignty over this culminated with

**[00:29:07]** the first human being ever born on the

**[00:29:09]** Antarctic continent with amelo Marcos

**[00:29:11]** Palma on the 7th of January

**[00:29:14]** 1978 who's been followed by at least 10

**[00:29:16]** additional Argentinian and Chilean

**[00:29:18]** children since then since that time

**[00:29:20]** Argentina and Chile have even built up

**[00:29:22]** schools in their permanent settlements

**[00:29:24]** on Antarctica that children are

**[00:29:25]** currently busy attending right now and

**[00:29:28]** remember that in addition to disputing

**[00:29:29]** territory in Antarctica Argentina and

**[00:29:32]** the United Kingdom also more bitterly

**[00:29:34]** dispute the sovereignty of the nearby

**[00:29:36]** Faulkland Islands along with South

**[00:29:37]** Georgia and the South Sandwich Islands

**[00:29:39]** as well this dispute has historically

**[00:29:42]** been far more controversial than their

**[00:29:44]** disputed claims in Antarctica because

**[00:29:47]** unlike Antarctica thousands of people

**[00:29:49]** actually live here the Falklands are

**[00:29:51]** presently controlled by the UK and have

**[00:29:52]** a population of about 3,600 British

**[00:29:55]** citizens which is gigantic compared to

**[00:29:57]** the population of settlements in

**[00:29:59]** Antarctica the UK has nearly

**[00:30:02]** continuously administered the fauland

**[00:30:03]** islands for nearly two centuries since

**[00:30:06]** the 1830s but for various historical and

**[00:30:09]** Geographic reasons Argentina has heavily

**[00:30:11]** disputed bren's control of them for the

**[00:30:13]** two centuries ever since the dispute

**[00:30:15]** infamously came to a climax in 1982 when

**[00:30:18]** Argentina unexpectedly launched a

**[00:30:20]** fullscale amphibia invasion of the

**[00:30:22]** Falklands along with South Georgia and

**[00:30:24]** the South Sandwich Islands which sparked

**[00:30:26]** a 10-week long war between Argentina and

**[00:30:28]** the UK around the islands that killed

**[00:30:30]** nearly a thousand soldiers and wounded

**[00:30:32]** more than 2,000 others with major Naval

**[00:30:35]** losses suffered on both sides

**[00:30:37]** Argentina's invasion of the islands

**[00:30:39]** ended up being decisively defeated by

**[00:30:41]** the British the islands have remained

**[00:30:43]** within the UK ever since and the dispute

**[00:30:45]** over the Faulkland between them while

**[00:30:47]** continuing has largely moved away into

**[00:30:49]** the very far background of geopolitics

**[00:30:51]** that is rarely brought up today in the

**[00:30:53]** context of much larger disputes going on

**[00:30:55]** in Ukraine and the Middle East but when

**[00:30:58]** that recent russian-made discovery of

**[00:31:00]** 511 billion barrels of oil down there in

**[00:31:02]** the middle of both of their claims in

**[00:31:04]** Antarctica the Falin question could be

**[00:31:06]** brought back to the Forefront for both

**[00:31:08]** London and Buenos arees sooner rather

**[00:31:10]** than later with the current market price

**[00:31:12]** for a barrel of Brent crude oil being

**[00:31:14]** $86.40 when I wrote this video on the

**[00:31:17]** 3rd of July 2024 those 511 billion

**[00:31:21]** barrels of oil in the wetle sea could

**[00:31:23]** theoretically be worth something to the

**[00:31:25]** tune of $44 trillion

**[00:31:28]** almost double the entire GDP of the

**[00:31:30]** United States if a country or a

**[00:31:33]** corporation could control this Antarctic

**[00:31:34]** oil field and didn't give a damn about

**[00:31:36]** international law and the Antarctic

**[00:31:38]** treaty system they could literally

**[00:31:40]** manage to Eclipse even Saudi Arabia as

**[00:31:43]** the world's Mightiest oil power and

**[00:31:45]** completely transform their entire

**[00:31:47]** civilization in the process which is a

**[00:31:49]** whole hell of an incentive to actually

**[00:31:51]** do it the only thing standing in the way

**[00:31:54]** right now from anybody doing that on

**[00:31:56]** paper is the Antarctic treaty system

**[00:31:58]** that strictly forbids anyone from

**[00:32:00]** harvesting Antarctica's resources

**[00:32:02]** beneath the 60° latitude line but that

**[00:32:04]** treaty is actually up for review in only

**[00:32:07]** 24 years from now in 2048 and any

**[00:32:10]** country involved with the treaty is

**[00:32:12]** legally able to walk away from it and

**[00:32:14]** withdraw whenever they want to right now

**[00:32:17]** the 511 billion barrels of oil that the

**[00:32:19]** Russians apparently discovered here are

**[00:32:21]** better to think of as deposits rather

**[00:32:23]** than as reserves since nobody can

**[00:32:25]** legally access them but when the Artic

**[00:32:28]** treaty comes up for review in 2048

**[00:32:30]** Argentina the UK Chile and maybe even

**[00:32:33]** other outside Powers will become heavily

**[00:32:35]** motivated to begin allowing Drilling and

**[00:32:37]** Mining to take place in Antarctica if

**[00:32:40]** they stand to gain trillions of dollars

**[00:32:42]** by doing so the ice cover in the wetle

**[00:32:44]** sea where the oil field was discovered

**[00:32:46]** is thinning out with climate change and

**[00:32:48]** is increasingly becoming easier to

**[00:32:49]** access by ship or offshore oil rig while

**[00:32:52]** the Antarctic Peninsula to the West

**[00:32:54]** protects the sea a bit from the often

**[00:32:55]** violent Oceanic swell that swer SS

**[00:32:58]** around the continent above it

**[00:33:00]** nonetheless Antarctica in the wed sea is

**[00:33:02]** still a very difficult place to actually

**[00:33:04]** work in for now the location is

**[00:33:06]** extremely remote and thousands of

**[00:33:08]** kilometers away from civilizational

**[00:33:10]** centers in Argentina or South Africa

**[00:33:12]** while icebergs and Ice flows within the

**[00:33:14]** sea can still pose a grave challenge to

**[00:33:16]** the stability and safety of offshore oil

**[00:33:18]** platforms extracting the oil deposit

**[00:33:20]** here will undoubtedly be a prohibitively

**[00:33:23]** expensive venture to try and undertake

**[00:33:25]** which means that for now even if a

**[00:33:27]** country like Russia didn't really care

**[00:33:28]** about violating international law by

**[00:33:30]** extracting the oil they'd still have to

**[00:33:32]** deal with the cold Financial calculus

**[00:33:34]** being against them that simply makes

**[00:33:36]** extracting the oil not very economically

**[00:33:38]** feasible but again in the not too

**[00:33:41]** distant future as the ice cover in the

**[00:33:42]** wettle sea thins out with climate change

**[00:33:45]** and as the Antarctic treaty officially

**[00:33:46]** comes up for review in 2048 some states

**[00:33:49]** may be open to trying out their shot and

**[00:33:52]** if Argentina can actually finally get

**[00:33:54]** its economic act together over the next

**[00:33:56]** couple of decades they might also become

**[00:33:58]** interested in challenging the United

**[00:34:00]** Kingdom over the status of the Faulkland

**[00:34:01]** Islands again it is the UK's control

**[00:34:04]** over the Falklands along with the

**[00:34:05]** uninhabited South Georgia and the South

**[00:34:07]** Sandwich Islands that forms the legal

**[00:34:09]** basis for the UK's territorial claim in

**[00:34:11]** Antarctica nearby that overlaps directly

**[00:34:14]** with the argentinians claim and with the

**[00:34:16]** gigantic Russian discovered oil field

**[00:34:19]** hypothetically if and it's a huge if

**[00:34:22]** Argentina were to somehow miraculously

**[00:34:24]** become capable of pushing the British

**[00:34:26]** out of the faland then Argentina would

**[00:34:29]** greatly weaken the British claim in

**[00:34:30]** Antarctica that overlaps their own and

**[00:34:32]** they would greatly strengthen their own

**[00:34:34]** claim to the gigantic oil field which

**[00:34:37]** could allow the country to radically

**[00:34:39]** transform itself the same way that Saudi

**[00:34:41]** Arabia or the United Arab Emirates did

**[00:34:43]** after the antartic treaty comes up for

**[00:34:44]** review in 2048 by allowing themselves to

**[00:34:47]** actually begin extracting some to even

**[00:34:50]** all of that oil and at the same time the

**[00:34:53]** UK will be well aware of this potential

**[00:34:55]** challenge in the coming decades that

**[00:34:56]** Argentina and potentially other nations

**[00:34:58]** like Russia could Mount against them in

**[00:35:00]** the area and so they will also be

**[00:35:02]** heavily incentivized to maintain their

**[00:35:04]** control over the Faulkland South Georgia

**[00:35:06]** and the South Sandwich Islands at all

**[00:35:08]** costs to maintain their own claim in

**[00:35:10]** Antarctica and to the giant oil field as

**[00:35:12]** well for whoever maintains control over

**[00:35:14]** the field after 2048 could potentially

**[00:35:17]** become the world's next Saudi Arabia and

**[00:35:20]** for that reason the future of the

**[00:35:22]** Antarctic continent is a deeply

**[00:35:24]** uncertain

**[00:35:25]** one now if you're anything like me you

**[00:35:28]** might always be wondering why it still

**[00:35:29]** takes so much money and time to eat more

**[00:35:32]** healthily the global food Supply runs

**[00:35:34]** more efficiently than ever but there's

**[00:35:35]** still seems to be this trade-off where

**[00:35:37]** you have to choose only two of the

**[00:35:39]** following three options with your meals

**[00:35:42]** healthiness affordability and quickness

**[00:35:44]** you can have a quick and healthy meal

**[00:35:45]** but it'll be expensive you can have an

**[00:35:47]** affordable and quick meal but it'll be

**[00:35:49]** unhealthy or you can have a healthy and

**[00:35:51]** affordable meal but it'll be timec

**[00:35:52]** consuming and inconvenient for a very

**[00:35:55]** long period in my life I was really

**[00:35:57]** trying hard to figure out the answer to

**[00:35:59]** this dilemma by discovering a reliable

**[00:36:00]** source of meals that could actually

**[00:36:02]** Encompass all three attributes

**[00:36:04]** healthiness affordability and quickness

**[00:36:06]** and I eventually discovered and became a

**[00:36:07]** customer of what ultimately became this

**[00:36:09]** video sponsor hellofresh the concept of

**[00:36:12]** hellofresh is pretty straightforward you

**[00:36:14]** just visit their app or website and

**[00:36:16]** select which meals you want to eat and

**[00:36:18]** then the next week an insulated box will

**[00:36:19]** show up on your doorstep filled with all

**[00:36:21]** the fresh pre-portioned and partially

**[00:36:23]** prepared ingredients you need so that

**[00:36:24]** you can homecook your meals way faster

**[00:36:27]** then if you had wasted a bunch of time

**[00:36:28]** planning your meals out going to the

**[00:36:30]** grocery store and picking out

**[00:36:31]** ingredients and then coming home and

**[00:36:33]** prepping and not only that but you get

**[00:36:35]** everything you'll need in exactly the

**[00:36:37]** right quantities you need which results

**[00:36:38]** in hellofresh meals reducing food waste

**[00:36:40]** by up to 45% when compared to grocery

**[00:36:43]** shopping and a 31% lower carbon

**[00:36:45]** footprint than meals of the same portion

**[00:36:47]** size made from Supermarket ingredients

**[00:36:49]** and 100% of helloof Fresh's delivery

**[00:36:52]** emissions are also offset which all

**[00:36:54]** significantly cuts down on the

**[00:36:55]** environmental impact your meals are

**[00:36:57]** having in addition to all of the time

**[00:36:58]** and cost savings and best of all the

**[00:37:00]** meals themselves just taste really

**[00:37:02]** really good that's the biggest reason of

**[00:37:05]** all that I've been a loyal customer

**[00:37:06]** myself to hellofresh for years now and

**[00:37:09]** why I've been making meals like this

**[00:37:10]** amazing Buffalo spiced chicken for more

**[00:37:12]** than 3 years now they are just the best

**[00:37:15]** solution that I've ever found for having

**[00:37:17]** regular dinners and if you want to see

**[00:37:19]** if I'm right and improve the way you eat

**[00:37:21]** too now is a great time to do so because

**[00:37:24]** you can go to hellofresh.com next or

**[00:37:26]** follow the link Down Below in the

**[00:37:28]** description and use codee realife lore

**[00:37:30]** apps for free appetizers for life one

**[00:37:34]** free appetizer item per box while your

**[00:37:36]** subscription is active again that's code

**[00:37:38]** reifel apps at hellofresh.com for free

**[00:37:41]** appetizers for Life signing up is also

**[00:37:44]** just a great way to help support my

**[00:37:45]** channel too and as always thank you so

**[00:37:48]** much for watching

# Full Text (without timestamps)

Antarctica is easily the least understood and the most mysterious of All Earth's continents in the 21st century it's such a poorly understood place that most people alive today still don't even really have a solid grasp about Antarctica's true size or shape something that's probably not really helped by our perception of Antarctica as this sprawling misshapen blob that we always see stretching across the bottom of our two-dimensional Maps if it's even displayed on the map at all in reality Antarctica is the world's fifth largest continent exceeding the sizes of austral Australia and Europe and being closer in size to South America than any other continent the true scale of Antarctica can be revealed when overlaying it at top a continent that were more familiar with like North America Antarctica is significantly larger than the mainland Continental 48 US states with the distance from the Antarctic Peninsula to the other side of the continent is as far as the Canadian Arctic islands are to Mexico and placed over Europe Antarctica would stretch from the far Northern reaches of Norway and Finland down to Iran and Iraq in the Southeast and well past Ireland into the Mid-Atlantic to the West it's a genuinely massive place and it's also almost completely empty and absent from human life the human population of Antarctica ranges from as many as 4,000 people during the warmer Antarctic summer months to as few as only a thousand people during the long dark and savagely cold Antarctic Winters when the darkness of night envelops the entire continent for months straight and the temperatures plummet to beneath - 34° c continent wide but it's not just the bru brutal weather of Antarctica that keeps its population low it's also just an insanely remote place that's really difficult to get yourself to it's located down at the bottom of the globe and the closest large human settlement to the continent is usua in Far Southern Argentina which is still about a th000 km away from the tip of the Antarctic Peninsula despite this closeness however the distance between usua and Antarctica is separated by the infamous Drake Passage an expanse of water that is perhaps the roughest and most dangerous part of the world's ocean here at the bottom of the civilizational world between the continents the Southern and Pacific Oceans flow unobstructed into the Atlantic representing the only location in the southern hemisphere where winds and ocean currents can each flow around the entire world without any obstruction from Land allowing them to violently whip around the world continually and keep picking up speed and strength as they go this combined with a collision of warmer water in the north and colder water in the South result in powerful waves in the Drake Passage that can climb up to nearly 20 M or 65 ft High during extreme weather scenarios with the rough conditions through the Drake Passage and the vast distances between Antarctica and the other nearby continents of Africa and Australia it's no wonder that human eyes most likely never even saw the Frozen continent at all until the 19th century when a Russian ship made the first ever recorded discovery of Antarctica in 1820 even today more than 2 centuries later we still understand precious little about this ice olated continent especially anything about what's possibly beneath the Titanic antarctic ice sheet ice covers more than 98% of the Antarctic continent's surface leaving very few exposed areas of land above the ice that we can actually observe with our own eyes on average across the entire continent the Antarctic ice sheet stretches more than 2 km thick from the surface we can observe down to the surface of the actual Continental land mass but at its thickest points the ice on Antarctica can reach upwards of nearly 5 K thick which is nearly as thick as six of the bir khalifas in Dubai the world's tallest building all stacked on top of each other this is why 61% of all the freshwat on the planet is locked away in Antarctica's ice sheet and if the entire thing melted away into its liquid form it would probably end up raising Global sea levels by around 60 M which would be enormously catastrophic and result in the total obliteration of Florida and most of the US Gulf and East coasts the ice sheet of Antarctica is so thick and impenetrable that it's widely accepted that we know more about the surface of far away worlds like Mars today than what's actually beneath the Antarctic ice sheet on the real surface of Antarctica rather than drilling through kilometers of ice to see what's beneath it the primary way that we've been able to sort of visualize what's beneath the ice on the continent is by flying planes over it and shooting radio waves down into the ice below and then analyzing how the waves Echo back up to the plane a process that's known as radio Echo sounding but the Antarctic continent is of course a much larger place than even Europe is and so flying planes doing this technique over the entire continent would be a brutally painstaking expensive and time-consuming process so as it stands now we only have a limited idea of what's beneath the Frozen continent based on the few radio Echo sounding flights we've actually done across it so far and it's estimated that more than 90% of the continent beneath the ice remains unmapped and unknown but the small small amount of information we already do know about what's beneath the world's largest ice sheet on the world's most mysterious continent is already incredibly fascinating for starters we already know that Antarctica isn't really a unified land mass beneath the ice like it appears to us above the ice were all of the continents ice sheet to melt or be removed the Antarctic continent's true shape would be revealed to us what we currently know is the Antarctic peninsula in reality would emerge as a completely separate archipelago of mountainous islands that has sometimes been referred to as lesser Antarctica While most of the rest of the continent known as greater Antarctica would remain above the ocean surface and be roughly the same size as Australia each of these two different halves of Antarctica one archipelagic and one Continental would become this way because of their radically different geologies and histories the area of Greater Antarctica or the Eastern side of the continent is known to consist of more ancient ignas and metamorphic rocks while the more archipelagic lesser Antarctica is much younger and made up a sedimentary and vol volcanic rocks instead fascinatingly lesser Antarctica belongs to the Great Pacific Ring of Fire a continuous belt of tectonic fault lines and active volcanoes that spans nearly the entire perimeter of the Pacific Ocean and which has existed for about the past 35 million years as a result most of the archipelagos and islands that exist in lesser Antarctica are volcanic in nature despite their appearances of Frozen ice and Glaciers on top of them Mount arabus far to the east in Antarctica is the highest active volcano on the continent and the southernmost active volcano on the planet complete with a lake of molten lava within its inner summit crater that has been observable since the 1970s and the last erupted only a few years ago in 2020 the average yearr round temperature around where Mount arabus is located remains around -7° C and during the Antarctic winter months between April and September the temperature will never climb above -20 C and it'll sink to as low as - 62° c in August cold enough to cause frostbite to expose Skin Within minutes or to instantly freeze water if you were to pour out a bowl of hot water in the air at these temperatures it would turn to snow before it even hit the ground this is an environment that is incredibly hostile to life where you wouldn't expect to find very much of it and yet just beneath the surface of Mount arabus is an entire new world that we've only just started to come to understand decades and centuries worth of hot steam produced by the mount arabis volcano have carved out a network of tunnels through the ice beneath the mountain Within These subvolcanic Ice Caves the temperatures are known to reach as high as 25° C or about 77 F warm enough for you or me to hang out down there in a t-shirt and shorts and be comfortable doing it despite being in the middle of Antarctica and that means that the antartic subvolcanic cave systems could be warm enough to host all kinds of life that we may not even be aware of yet back in 2017 a team led by the Australian National University acquired a sample of the soil within one of these cave systems beneath Mount arabus and after analyzing its composition they discovered that the soil contain DNA traces of things like algae and mosses but most tantalizing of all DNA traces of small animals that might be living down there as well in a sub Antarctic Oasis Of Life most of these animal rated DNA traces they found were similar to species that we already know of living up on the surface but not all of them some of the traces couldn't be linked to species we already know about but were most closely related to anthropods species like shrimp centipedes or spiders meaning that there could be anthropod like species down in these warm caves beneath Mount arabus that remain unknown to Mankind and indeed there are 15 other active or semi-active volcanoes located across Antarctica that could contain similar warm steam carved tunnels and caves beneath them all as well meaning that there could be more than a dozen of these oasis-like ecosystems beneath the ice of Antarctica that we presently know virtually nothing about planes flying over Antarctica with radio Echo sounding data have revealed a vast landscape beneath the ice of rolling valleys riverbeds and Hills similar to the landscape seen Elsewhere on Earth only Frozen in time and locked beneath colomet of ice one of the most interesting geographic features on the continent that was only recently discovered in 2019 however is what we now know as the deepest canyon anywhere on the earth's land surface a canyon that if it wasn't hidden by the ice above it would put the Grand Canyon in America to shame within greater Antarctica beneath the Denman Glacier exists the canyon that we Now understand plummets to 3 and 1/2 km deep beneath the sea level which is just insanely deep for reference this Canyon in Antarctica sinks to a depth that is roughly the same as the average depth of the Atlantic Ocean and it's roughly half as deep as Mount Everest is tall the deepest point below sea level on exposed land on the planet is the shoreline around the dead sea between Jordan Israel and the West Bank and it only sinks to as low as 413 m beneath sea level this Canyon in Antarctica sinks nearly 8 and 1/2 times deeper than that only in the oceans do Canyons dip deeper below the surface and we didn't even know about this super deep Canyon on Antarctica until 2019 because it's been covered up by kilometers worth of ice for millions of years now imagine what looking out at this Canyon would be like without without all of the ice obscuring it but the deepest canyon on the earth is far from the only interesting geographic feature that the ice of the Frozen continent has been hiding from us in 1958 a team of Soviet researchers in Antarctica discovered a massive mountain range beneath the ice sheet that nobody knew about beforehand that became known as the gamertv mountain range named after the Soviet geophysicist gregori gamertv these mountains are roughly the same length and height as the Alps in southern Europe are running for about 1200 km long with Peaks soaring up to as much as 2700 M High they're also completely obscured from the surface because they are buried beneath more than 600 M of ice and snow pack and they're still far from the only interesting thing hidden beneath the ice of the continent in the late 1950s and early 60s researchers began detecting a large gravity anomaly in East Antarctica where the gravity present was weaker than what would be naturally expected the anomaly spanned across a huge area beneath antarctic ice sheet that was about 243 km wide and sunk down to a depth of about 848 M for decades there were several hypotheses about what exactly could be causing this weaker gravity in the area of East Antarctica until in 2006 a team of researchers from Ohio State University using data from satellites owned by NASA and the German Aerospace Center managed to identify what they believed to be an ancient 480 km wide meteorite impact crater that was buried beneath the ice sheet but because of the area's extremely remote location and distance beneath several kilomet worth of solid ice there's still to date have never been any direct samples taken from the area to actually test for this impact event hypothesis and so the idea that an asteroid could have impacted this area and caused a massive crater in anarctica is still only a theory for now but a highly likely Theory nonetheless If the gravity anomaly here turns out to indeed be a meteorite impact crater it would be by far the largest one ever discovered in the world with a width that's nearly three times as large as the chick Club impact crater in the yukatan peninsula of Mexico that is believed to have been formed by a 10 km wide asteroid that struck the area roughly 66 million years ago and likely contributed to the annihilation of the dinosaurs in order to create an impact crater nearly three times larger than that one in Antarctica the asteroid that might have hit the area would have had to have been four to five times larger than the dinosaur killer asteroid was so roughly 40 to 50 kilm wide an asteroid that would have been big enough to stretch from Central Park in New York City all the way into Connecticut now because of effects like erosion impact craters on the Earth's surface gradually disappear over time because of this phenomenon the Ohio State University researchers who concluded that the structure hidden beneath the Antarctic ice sheet was an impact crater believe that it happened no more than 500 million years ago and no less than 100 million years ago because the structure seems to also have been geographically disturbed by the rift valley in the area that only formed around a 100 million years ago during the separation of Antarctica and Australia from the ancient gondwana superc continent and that timeline between 100 and 500 million years ago is extremely interesting because it potentially lines up more or less with the greatest mass extinction event that ever happened in our planet's history the perian Triassic Extinction event that took place sometime around 21.9 million years ago an a apocalyptically traumatizing event that is also often referred to as the great dying something happened on our planet all that time ago that quickly annihilated 57% of all biological families that existed at the time including a wipe out of 81% of the Earth's marine species and 70% of the Earth's land-based vertebrate species it is by far the biggest mass extinction event that ever took place on the planet and we still don't have a precise explanation of what exactly happened that caused it but it could just be that the deep and mysterious antarctic ice sheet has been hiding the cause of the Great dying from us this entire time if indeed it turns out that the East Antarctic gravity anomaly is truly the biggest impact crater that we have ever discovered and it's been even further hypothesize that if it really was an impact event that caused it it could have been so massive and destructive that it directly contributed to the breakup of the gandana supercontinent by severely weakening the crust at the location of impact which eventually led to the separation of that ancient continent between Antarctica Australia and India also hidden beneath the surface of the vast Antarctica I sheet are around 675 liquid subglacial Lakes the researchers have only started discovering since the 1990s little more than only three decades ago several of these liquid Lakes have been discovered Deeper Than 3 kilm beneath the surface of the Antarctic ice sheet and by far the largest of them discovered to date is the infamously mysterious Lake VTO which was only discovered by a team of Russian researchers in the east of the continent in the early 1990s and its Discovery wasn't announced to the general public until it was published in the scientific journal Nature in 1996 it turns out the lake VTO is a massive body of liquid water that exists about 4 kilm deep beneath the surface of the Antarctic ice sheet and by the volume of water contained within the lake lake VTO is surprisingly the sixth largest known lake in the world containing an amount of water within it that is even greater than that of Lake Michigan in the United States and we didn't even know about it at all until the same year that Tiger Woods made his professional debut at the PGA Tour interestingly the liquid water contained within Lake VTO is below freezing temperature maintaining an average of about -3° C or about 27 F this is possible because it's believed that there's a geothermal vent beneath the Lake's floor that's providing it with some heat while the pressure from the 4 km of thick ice above the lake reduces the Ice's melting point and provides the Lakes water with insulation from the abominably cold temperatures above it and while -3° C temperature water is too cold for most marine life we know of to survive it's still warm enough for many other species we know of that have adapted to extremely cold environments to thrive in Antarctic Krill ice fish arctic cod and certain species of sea stars sea urchins and mollusks that we already know of are capable of surviving in extremely cold Subzero Waters so what mysterious life forms that we're presently unaware of could be existing Down Below in the depths of lake vosto and the hundreds of other Lakes dotted across Antarctica hidden beneath the ice sheet Lake VTO is a particularly interesting case because it's believed to have been completely sealed off from the rest of the outside world by the Antarctic ice sheet for at least the past 15 million years meaning that if life exists within the lake it has evolved in complete separation from everywhere else in the world for millions of years now in 2012 a team of Russian researchers successfully carried out the first ever drilling from the surface of the Antarctic ice sheet all the way down nearly 4 km deep to the liquid surface of Lake VTO where samples of the water were taken and carried back to the surface however this initial drilling sample taken from the lake by the Russians has been widely criticized for not being properly sanitized and as a result the data they took is known to be heavily contaminated subsequent analysis of the Lakes water sample has revealed kerosene contam ination and outside bacteria contaminants that were present on the drill bit before it even reached the lake 255 previously known contaminant species of bacteria have been identified by researchers in the 2012 Russian Ice sample since then but they have also managed to identify at least one bacteria species from the sample that is presently unknown and has no matches in any International databases which the team hopes is evidence for at least one unknown bacteria species that exists down there the Russian team apparently drilled another second bore hole down from the surface into Lake VTO in 2015 that they claimed was cleaner and more properly sanitized that resulted in another 1 lit sample of Lake V's water being acquired but the results on that water to date have never been published or reported on so it's unclear what if anything they may have found in it most researchers involved with Lake VTO expect that if life actually does exist down there it'll be limited to simple life forms like bacteria which might not really sound all that exciting or sexy but it could carry with it signific ific implications for other simple life forms that might be existing Elsewhere on other worlds in our own solar system deep in the liquid oceans we also know exist beneath kilometers of Frozen ice on some of the moons of Jupiter and Saturn like Europa and Enceladus but there might also just be the chance that there actually is more complex life existing down there in Lake vosto than we might expect in 2020 a study conducted by researchers kby gura and Scott Rogers of Lake vosto accretion ice rather than the liquid water within the lake itself revealed additional unknown bacteria species and most fascinatingly of all an rrna sequence that was more than 97% similar to that of a species of rock codfish that is common along the Antarctic Coastline representing the first scientific report of an unknown fish species that could possibly be existing down within Lake VTO it would be incredible to one day see a sea drone with a camera and L attached to it get deployed down into Lake vok to see more of what's actually down there because based on a similar event that happened just a few years ago in 2021 the results could indeed be wildly unexpected in the final days of December in 2021 a team of scientists from New Zealand melted a small hole through a glacier in West Antarctica here at the cam by stream the team knew that a large Cavern of liquid water existed about 500 M beneath the glacier surface here carved out over time by a small flowing river beneath the ice but when the team actually lowered a camera down into the hole they carved down into the liquid waterfill Cavern below what they saw shocked everybody involved they actually saw animals hundreds of them swimming around in the isolated Cavern below the team later identified these blurry orange blotches to be shrimp-like Marine crustations called aods and here in this cold isolated Cavern of water 500 M beneath the ice and a whopping 500 km away from the nearest sunlight locked in complete darkness were hundreds of these more complex life forms absolutely thriving practically nobody expected to find that much life down here and so what implications does that 2021 Discovery have for what unknown life may be existing within Lake VTO or within any of the hundreds of other Lakes locked beneath the Antarctic ice sheet that we haven't ever seen so far the area of the West Antarctic ice sheet spans across a vast area that is roughly the same size as Mexico and yet to this date Humanity has only managed to actually witness a fraction of the unknown world that exists beneath the ice here a few dozen small B holes dotted around the region that has exposed a disjointed area to us only about the size of a regulation basketball court the world beyond that basketball court in an area that's the size of Mexico remains unobserved unknown and mysterious and I deeply want to know more about it and in addition to all the unknown life and geographic features that probably exists beneath the Antarctic ice sheet there's also almost certainly a vast amount of undiscovered and completely untapped natural resources beneath the ice sheet that Humanity will likely begin to deeply covet one day soon as well for decades it has been theorized that Antarctica is likely home to massive deposits of energy resources like oil and gas and coal owing to the fact that for hundreds of millions of years in the past the continent was not frozen and existed in a warmer part of the world that likely contained eons worth of animal and plant life it was only around 35 million years ago that Antarctica drifted far enough South to begin acquiring its ice sheet and for hundreds of millions of years before that it never had any allowing plenty of time for complex life to evolve and die and gradually transform into hydrocarbons like petroleum over the eons but it wasn't until just a few months ago before this video was published in May of 2024 that we had any idea of the actual potential extent of these Antarctic oil and gas reserves early that month evidence presented to the UK parliament in London revealed that a Russian research ship operating in the wed sea region between the Antarctic peninsula in the west and greater Antarctica in the East discovered a truly gargantuan oil field there estimated to contain a deposit of approximately 511 billion barrels which is an absolutely absurd amount of oil for reference the oil contained within this one Antarctic superfield is roughly double the amount of oil reserves controlled by Saudi Arabia or put another way the oil in this Antarctic super field is roughly 10 times the amount of oil that the entire North Sea has collectively produced over the past 50 years British members of parliament cautioned in 2024 that the Russian Discovery here could become a Prelude to countries or companies hauling in their offshore drilling platforms to exploit the field and most alarmingly of all the Discover was made directly in the epicenter of the most widely disputed part of the Frozen continent that is simultaneously claimed by the United Kingdom in Argentina and partially by Chile as well but for now straight up drilling for oil in the wetle sea here is illegal under international law because of something known as the Antarctic treaty an international treaty that has its origins in the mid 20th century you see up until the late 1950s Antarctica was theoretically a free-for-all land open to exploitation settlement and colonization from anyone brave enough to try it it was simply the continent's extremely remote location and extremely hostile environment that kept most people from Ever trying but not everyone seven countries officially staked out their own territorial claims to Antarctic territory during the early 20th century including New Zealand Australia France and Norway and the sharply competing overlapping claims of the United Kingdom Argentina and Chile all of these countries territorial claims in Antarctica were based on their pre-existing legal claims or control of territory nearby to Antarctica such as New Zealand's and Australia's home territories France is relatively nearby cro and kulan islands and Norway's bouvet Island similarly the UK's claimed territory in Antarctica largely came out of an extension of their claims to the fauland islands along with South Georgia and the South Sandwich Islands nearby while Argentina's almost identical overlapping claim to Antarctica was based not only on their own territorial Mainland but also on their identical competing claims to the same Islands claimed by Britain the fauland along with South Georgia and the South Sandwich Islands while Chile's territorial claims were also based on the proximity of their Mainland territory the territorial disputes on Antarctica itself between the UK Argentina and Chile and between Argentina and the UK over all of these other Islands was heating up in the mid 20th century and risked escalating into violence and So within the context of the greater cold war that was going on between the United States and the Soviet Union at the time a group of 12 countries got together in 1959 and signed the Antarctic treaty which primarily sought to figuratively freeze the antartic continent in a sort of stasis just as it was and prevent the use of the continent for any military purposes while preserving it for scientific research and access military operations on Antarctica were agreed by everyone to be severely restricted nuclear tests and detonations as well as dumping of nuclear waste on Antarctica were all agreed to be banned and a powerful independent monitoring system was put into place that enabled any country to inspect any other country's facilities on the continent without warning to make sure they were actually abiding by all of the terms of the treaty Antarctica as defined by the treaty consists of all the land ice islands and ocean below the 60 degrees of latitude line the seven countries who had already made territorial claims to Antarctica before the treaty was signed had their claims Frozen and they became legally unenforceable the US and the Soviet Union and later Russia reserved themselves the right to stake out their own territorial claims to Antarctica at some undetermined point in the future will any country from around the world was eligible to join the treaty and establish research bases on the continent wherever they deemed fit regardless of any other country's territorial claims and perhaps most importantly the treaty explicitly forbids the harvesting of any of Antarctica's potential resources or even prospecting for the continent's potential resources no mining or drilling for resources on Antarctica have been allowed ever since as a result up to the present day in 2024 there are dozens of active research stations and bases dotted all across the Antarctic continent that belong to no less than 55 different countries from all around the world many of them being within the zones of the continent's territory that's theoretically claimed by other countries the United States runs by far the biggest base on the continent at McMurdo within the part of the continent that's claimed by New Zealand during the warmer summer months McMurdo can host up to 1,500 residents which is also about a third of the entire human population that's on Antarctica during those months the US also runs the amonson Scott research station at the geographical South Pole and while the dozens of other Count's bases are located all across the rest of the continent most of them are heavily concentrated in the relatively warmer Antarctic Peninsula that stretches up towards the southern tip of South America Argentina and Chile however as the two countries that are geographically the closest ones to Antarctica have put much more effort than any of the others into actually solidifying their territorial claims to the continent they are the only two countries who have so far gone to the lengths of actually establishing permanent civilian settlements on the Frozen continent the argentinians at esparanza base on the antartic Peninsula and the Chileans nearby the peninsula on King George Island with their Vias estras the populations of each of these settlements only ranges from a few dozen in the winters to only a little more than a hundred in the Summers which is interestingly roughly equal to the population of the first permanent Colony that the English established in America at Rano back in the 16th century in the 1970s and 80s the Argentinian and Chilean governments both began sending pregnant women to their settlements in Antarctica so that they would give birth to Argentinian and Chilean citizens on Antarctic soil and therefore strengthen their National claims to the territories of Antarctica that they claimed sovereignty over this culminated with the first human being ever born on the Antarctic continent with amelo Marcos Palma on the 7th of January 1978 who's been followed by at least 10 additional Argentinian and Chilean children since then since that time Argentina and Chile have even built up schools in their permanent settlements on Antarctica that children are currently busy attending right now and remember that in addition to disputing territory in Antarctica Argentina and the United Kingdom also more bitterly dispute the sovereignty of the nearby Faulkland Islands along with South Georgia and the South Sandwich Islands as well this dispute has historically been far more controversial than their disputed claims in Antarctica because unlike Antarctica thousands of people actually live here the Falklands are presently controlled by the UK and have a population of about 3,600 British citizens which is gigantic compared to the population of settlements in Antarctica the UK has nearly continuously administered the fauland islands for nearly two centuries since the 1830s but for various historical and Geographic reasons Argentina has heavily disputed bren's control of them for the two centuries ever since the dispute infamously came to a climax in 1982 when Argentina unexpectedly launched a fullscale amphibia invasion of the Falklands along with South Georgia and the South Sandwich Islands which sparked a 10-week long war between Argentina and the UK around the islands that killed nearly a thousand soldiers and wounded more than 2,000 others with major Naval losses suffered on both sides Argentina's invasion of the islands ended up being decisively defeated by the British the islands have remained within the UK ever since and the dispute over the Faulkland between them while continuing has largely moved away into the very far background of geopolitics that is rarely brought up today in the context of much larger disputes going on in Ukraine and the Middle East but when that recent russian-made discovery of 511 billion barrels of oil down there in the middle of both of their claims in Antarctica the Falin question could be brought back to the Forefront for both London and Buenos arees sooner rather than later with the current market price for a barrel of Brent crude oil being $86.40 when I wrote this video on the 3rd of July 2024 those 511 billion barrels of oil in the wetle sea could theoretically be worth something to the tune of $44 trillion almost double the entire GDP of the United States if a country or a corporation could control this Antarctic oil field and didn't give a damn about international law and the Antarctic treaty system they could literally manage to Eclipse even Saudi Arabia as the world's Mightiest oil power and completely transform their entire civilization in the process which is a whole hell of an incentive to actually do it the only thing standing in the way right now from anybody doing that on paper is the Antarctic treaty system that strictly forbids anyone from harvesting Antarctica's resources beneath the 60° latitude line but that treaty is actually up for review in only 24 years from now in 2048 and any country involved with the treaty is legally able to walk away from it and withdraw whenever they want to right now the 511 billion barrels of oil that the Russians apparently discovered here are better to think of as deposits rather than as reserves since nobody can legally access them but when the Artic treaty comes up for review in 2048 Argentina the UK Chile and maybe even other outside Powers will become heavily motivated to begin allowing Drilling and Mining to take place in Antarctica if they stand to gain trillions of dollars by doing so the ice cover in the wetle sea where the oil field was discovered is thinning out with climate change and is increasingly becoming easier to access by ship or offshore oil rig while the Antarctic Peninsula to the West protects the sea a bit from the often violent Oceanic swell that swer SS around the continent above it nonetheless Antarctica in the wed sea is still a very difficult place to actually work in for now the location is extremely remote and thousands of kilometers away from civilizational centers in Argentina or South Africa while icebergs and Ice flows within the sea can still pose a grave challenge to the stability and safety of offshore oil platforms extracting the oil deposit here will undoubtedly be a prohibitively expensive venture to try and undertake which means that for now even if a country like Russia didn't really care about violating international law by extracting the oil they'd still have to deal with the cold Financial calculus being against them that simply makes extracting the oil not very economically feasible but again in the not too distant future as the ice cover in the wettle sea thins out with climate change and as the Antarctic treaty officially comes up for review in 2048 some states may be open to trying out their shot and if Argentina can actually finally get its economic act together over the next couple of decades they might also become interested in challenging the United Kingdom over the status of the Faulkland Islands again it is the UK's control over the Falklands along with the uninhabited South Georgia and the South Sandwich Islands that forms the legal basis for the UK's territorial claim in Antarctica nearby that overlaps directly with the argentinians claim and with the gigantic Russian discovered oil field hypothetically if and it's a huge if Argentina were to somehow miraculously become capable of pushing the British out of the faland then Argentina would greatly weaken the British claim in Antarctica that overlaps their own and they would greatly strengthen their own claim to the gigantic oil field which could allow the country to radically transform itself the same way that Saudi Arabia or the United Arab Emirates did after the antartic treaty comes up for review in 2048 by allowing themselves to actually begin extracting some to even all of that oil and at the same time the UK will be well aware of this potential challenge in the coming decades that Argentina and potentially other nations like Russia could Mount against them in the area and so they will also be heavily incentivized to maintain their control over the Faulkland South Georgia and the South Sandwich Islands at all costs to maintain their own claim in Antarctica and to the giant oil field as well for whoever maintains control over the field after 2048 could potentially become the world's next Saudi Arabia and for that reason the future of the Antarctic continent is a deeply uncertain one now if you're anything like me you might always be wondering why it still takes so much money and time to eat more healthily the global food Supply runs more efficiently than ever but there's still seems to be this trade-off where you have to choose only two of the following three options with your meals healthiness affordability and quickness you can have a quick and healthy meal but it'll be expensive you can have an affordable and quick meal but it'll be unhealthy or you can have a healthy and affordable meal but it'll be timec consuming and inconvenient for a very long period in my life I was really trying hard to figure out the answer to this dilemma by discovering a reliable source of meals that could actually Encompass all three attributes healthiness affordability and quickness and I eventually discovered and became a customer of what ultimately became this video sponsor hellofresh the concept of hellofresh is pretty straightforward you just visit their app or website and select which meals you want to eat and then the next week an insulated box will show up on your doorstep filled with all the fresh pre-portioned and partially prepared ingredients you need so that you can homecook your meals way faster then if you had wasted a bunch of time planning your meals out going to the grocery store and picking out ingredients and then coming home and prepping and not only that but you get everything you'll need in exactly the right quantities you need which results in hellofresh meals reducing food waste by up to 45% when compared to grocery shopping and a 31% lower carbon footprint than meals of the same portion size made from Supermarket ingredients and 100% of helloof Fresh's delivery emissions are also offset which all significantly cuts down on the environmental impact your meals are having in addition to all of the time and cost savings and best of all the meals themselves just taste really really good that's the biggest reason of all that I've been a loyal customer myself to hellofresh for years now and why I've been making meals like this amazing Buffalo spiced chicken for more than 3 years now they are just the best solution that I've ever found for having regular dinners and if you want to see if I'm right and improve the way you eat too now is a great time to do so because you can go to hellofresh.com next or follow the link Down Below in the description and use codee realife lore apps for free appetizers for life one free appetizer item per box while your subscription is active again that's code reifel apps at hellofresh.com for free appetizers for Life signing up is also just a great way to help support my channel too and as always thank you so much for watching