

## AG24: Agallamh le Caoimhín Ó Donnaíle: Reul-eòlas

Interview with Caoimhín Ó Donnaíle: Astronomy

Presenter: Angela NicAoidh (Angela Mackay)



**ANGELA:**

Còmhla rium an-dràsta tha Caoimhín Ó Donnaíle, a tha a' fuireach san Eilean Sgitheanach agus aig a bheil ùidh mhòr ann an reul-eòlais. Fàilte ort, a Chaoimhín. An inns thu dhomh an toiseach cò às a tha thu bho thùs agus ciamar a thàinig thu gu bhith a' fuireach san Eilean Sgitheanach?

**CAOIMHÍN:**

Thogadh mi ann an Inbhir Àir - Ayr - 's chaidh mi gu Oilthigh Ghlaschu agus bha mi ag obair ann an Dùn Èideann agus, uill, dh'fhalbh an tè a bha a' teagasg coimpiutaireachd an seo romham agus bha iad ag iarraidh cuideigin aig an robh Gàidhlig agus eòlas coimpiutaireachd. Sin aona bhliadhn' fichead air ais agus thàinig mi dhan Eilean an uair sin.

**ANGELA:**

Tha ùidh mhòr agad ann an reul-eòlais. An innis thu dhomh dè dìreach a th' ann an reul-eòlais?

**CAOIMHÍN:**

A h-uile rud mu na rionnagan agus na tha sna speuran. Tha diofar ìrean ann. Tha na fìor eòlaichean aig na h-oilthighean a' staideadh cosmology agus galaxies fad às agus breith a h-uile rud agus mar sin air adhart, ach 's e seòrsa de eòlas àbhaisteach a th' agam air.

**ANGELA:**

Carson a tha e a' còrdadh riut cho mòr mar chur-seachad?

**ANGELA:**

With me now is Caoimhín Ó Donnaíle, who lives on the Isle of Skye and who has a keen interest in astronomy. Welcome, Caoimhín. First of all, would you tell me where you come from originally and how you came to be living on the Isle of Skye?

**CAOIMHÍN:**

I grew up in Ayr and went to Glasgow University and I was working in Edinburgh and, well, the woman who taught computing here before me left, and they were looking for someone who spoke Gaelic and had studied computing. That was twenty-one years ago and I came to the island then.

**ANGELA:**

You have a keen interest in astronomy. Would you tell me what exactly is astronomy?

**CAOIMHÍN:**

It has to do with the stars and everything in the heavens. There are different levels. The real experts in universities study cosmology and distant galaxies and the origin of everything and so on, but I really only have a basic knowledge of it.

**ANGELA:**

Why do you enjoy it so much as a hobby?

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### CAOIMHÍN:

Chan e cur-seachad a th' ann dhòmhsa, ach dìreach tha iad ann agus tha e math a bith eòlach orra agus tha e gu math prataigeach cuideachd. Tha fios aig daoine mar a tha An Crann agus ma tha thu a' leantainn na "pointers" gu Rionnag a Tuath agus a' dèanamh do shlighe anns an dòigh sin, agus rinn mi sin barrachd is aon turas nuair a bha mi air na monaidhean air an oidhche.

Ach nuair a bha mi aig an oilthigh, bha mi a' dol còmhla ris a' chomann sreap san deireadh seachdain gu bothain ann an Gleann Nibheis no àite fad às agus chur e iongnadh mòr orm cho brèagha, deàrrsach 's a ... Cha b' urrainn dhut a bhith ann an àite mar seo air oidhche bhrèagha reòite agus Slighe (Chlann) Uisnich agus na rionnagan gu lèir fhaicinn agus gun a bhith làn iongnadh. longantach.

### ANGELA:

'S e gluasad na gealaich cuspair a tha air leth inntinneach dhut fhèin. Carson a tha sin?

### CAOIMHÍN:

Tha e math a bhith a' tuigsinn rudan agus tha e gu math sìmplidh ri thuigsinn nuair a tha thu cleachdte ri faicinn na diofar cumaidhean agus mar a tha e ag atharrachadh. Tha a' ghrian air a dhol fodha ann a shin agus tha leth-chearcall na gealaich ann a shin agus tha fios agad gur e a' ghrian a' deàrrsadh air a' ghealaich a tha a' dèanamh sin. Agus cuideachd, tha buaidh aige air a' mhuir.

### ANGELA:

An urrainn dhut mìneachadh dhomh dè a' bhuidh a th' aig a' ghealach air a' mhuir?

### CAOIMHÍN:

It isn't a hobby for me, but just that they're there and it's good to know about them and it's fairly practical too. People know about The Plough and if you follow the pointers to The North Star and being able to navigate in that way, and I've done that more than once when I was out in the hills at night.

But when I was a student, I used to go out with the mountaineering club at the weekends to bothies in Glen Nevis or remote places and it really surprised me how beautiful and bright ... You couldn't be in a place like this on a beautiful frosty night and seeing the Milky Way and all the stars and not be filled with wonder. Awe-inspiring!

### ANGELA:

The phases of the Moon is a subject that you find extremely interesting. Why is that?

### CAOIMHÍN:

It's good to understand things and this is fairly easy to understand when you are used to seeing the different shapes and how they change. The sun sets over there and the half-full moon is over there and you know it's the Sun shining on the Moon that's doing that. And it also affects the sea.

### ANGELA:

Can you explain to me the effect the Moon has on the sea?

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### CAOIMHÍN:

B' urrainn. Thàinig mi a-steach le dèideagan an seo, leis na buill airson mìneachadh. Seo a' Ghrian, ceud gu leth millean cilemeatair air falbh, agus seo an Talamh agus seo a' Ghealach. Agus le seo agus na planaidean eile, sin an Rian-grèine. Tha buaidh mhòr aige air an uisge. Tha an uisge anns na cuantan saor airson gluasad. Chan eil a' chreag saor airson gluasad agus a h-uile rud anns a bheil cuideam, tha iad a' tarraing càch a chèile. Ma tha mi a' tilgeil seo suas, tha an Talamh a tha fodhainn ga tharraing a-nuas. Tha a' Ghealach a' dol timcheall na Talamh, ach chan eil e ag itealaich air falbh; tha an Talamh ga tharraing thuige, agus gu ìre, tha an Talamh a' gluasad mun cuairt cuideachd.

So, le bhith a' tarraing mar seo, mar a thuirt mi, tha an t-uisge ... Seo an uisge buidhe a th'agam an seo. Tha cnap de dh'uisge air taobh na Gealaich, agus sin an làn. Ach, shaoileadh tu leis a sin nach biodh ach aon làn ann gach latha, ach tha an t-uisge air an taobh thall ... .. tha e a' tarraing na Gealaich nas laige agus tha e ag itealachadh air falbh gu ìre leis a' chuairteachadh mar seo, so tha cnap eile air an taobh thall, agus sin an adhbhar, às dèidh dusan gu leth de dh'uairean a thìde, tha lìonadh agus tràghadh eile ann.

Bha mi a' tuigsinn seo bho nuair a bha mi òg agus bha mi air cluinntinn mu dheidhinn "spring tides" agus "neap tides" - sin reothart agus conntaigh - ach cha robh fios agam buileach dè a bh' ann. Uill, gu deimhinn, nuair a bha bàta - eathar fiodh - agam, fhuair mi a-mach, oir ma tha thu ag iarraidh am bàta a chur air tìr dhan a' gheamhradh, feumaidh fios a bhith agad ... Nuair a tha conntaigh ann, chan eil ann ach èirigh agus tràghadh rud beag gach latha, 's dòcha meatair air gach taobh. Nuair a tha reothart ann, 's e dhà no trì meatairean air gach taobh, còig no sia uile gu lèir, agus ma tha thu a' cur bàta air tìr, feumaidh e a bhith cho àrd 's a ghabhas gus nach tig a' mhuir agus stoirm agus gu sguab iad am bàta air falbh.

### CAOIMHÍN:

Yes. I've brought some toys in with me, and will explain it using these balls. This is the Sun, one hundred and fifty million kilometres away, and this is the Earth and this is the Moon. And these, together with the other planets, make up the Solar System. It has a major effect on water. The water in the oceans is free to move. Rock is not free to move and all things that have mass pull other things towards them. If I toss this up, the Earth under our feet pulls it down. The moon moves around the Earth, and it doesn't fly away; the Earth pulls it towards itself, and to a degree, the Earth moves around too.

So, in this way under the effect of gravity, as I said, the water is ... I am using yellow for the water here. The water bulges out on the same side as the Moon, and that is the high tide. But, you would expect, as a result of that, that there would only be one high tide per day, but the water on the opposite side is ... The moon's pull is weaker, and to a certain extent, it flies away under the effect of the rotation, so there is another bulge on the opposite side, and that is why, after twelve and a half hours, there is another high and low tide.

I understood this from when I was young and I had heard about spring tides and neap tides - reothart (spring tide) and conntaigh (neap tide) - but I didn't quite know what they were. Well, I definitely found out when I had a boat - a little wooden boat - because if you want to haul the boat ashore for the winter, you have to know ... When there is a neap tide, there is only a minimal movement of water each day, perhaps a metre either way. When there is a spring tide, it's two or three metres each way, five or six metres altogether, and if you are hauling a boat ashore, it has to be as high up as possible so that if there's a high tide or storm it won't sweep the boat away.

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### CAOIMHÍN:

'S e a' Ghrian a tha ag adhbharachadh seo, oir, a bharrachd air a' Ghealach a bhith a' tarraing uisge agus a' tilgeil uisge air falbh, ag adhbharachadh dà lìonadh gach latha, tha a' Ghrian a' dèanamh an aon rud, agus ma tha a' Ghealach mar seo, tha buaidh na Grèine agus buaidh na Gealaich a' dol tarsainn air a chèile, agus 's e conntraighe a chanas iad ri seo. Chan eil an ... Tha iad a' dubhadh às a chèile gu ìre agus chan eil ach beagan de shiubhal mhara ann, ach nuair a tha iad ann an sreath an seo, nuair a tha a' ghealach an seo no an seo, tha iad a' cur ri càch a chèile agus tha a' mhuir gu math àrd agus 'se reothart a chanas iad ri sin.

### ANGELA:

Ciamar a bhios tu a' coimhead na Gealaich? A bheil uidheamachd sònraichte agad?

### CAOIMHÍN:

Tha mi fhìn dìreach a' coimhead air le prosbaig, "binoculars", agus tha i glè mhath. Duine sam bith, faodaidh iad coimhead a' Ghealaich le ... dìreach "binoculars" àbhaisteach agus chì thu na "crateran" agus rudan. Tha e nas fheàrr nuair a tha leth-ghealach ann, oir tha na ... Tha faileas ... rudan nas soilleire nuair a tha faileasan ann agus chì thu cruthan na "craters" nas fheàrr. Nuair a tha gealach làn ann, tha a h-uile rud tuilleadh is deàrrsach so sin an t-àm as fheàrr, agus gu h-àraid air an oir an seo.

### ANGELA:

Nuair a thig e gu bhith a' coimhead na Gealaich, a bheil e nas fheàrr a bhith a-muigh air an tuath, mar an t-Eilean Sgitheanach, far nach eil truailleadh solais ag adhbharachadh duilgheadas dhut?

### CAOIMHÍN:

It's the Sun that causes this, because as well as the Moon attracting the water and pushing water away, causing two tides each day, the Sun does exactly the same thing, and if the Moon is in this position the effect of the Sun and the effect of the Moon cross over one another, and that is called a neap tide. It isn't ... They cancel each other out to a certain extent and there is little tidal flow, but when they are in this line, when the Moon is here or here, they augment each other and the tides are extremely high and that is called a spring tide.

### ANGELA:

How do you observe the Moon? Do you use specialised equipment?

### CAOIMHÍN:

I just observe the Moon with a telescope, or binoculars, and that works very well. Anyone can observe the Moon using ordinary binoculars and you'll see the craters and things. It's better if the Moon is only half full, because the ... the shadows ... things are clearer when there are shadows and you'll see the shapes of the craters more distinctly. When the Moon is full, everything is much too bright so that's the best time, especially when it's on this side.

### ANGELA:

When it comes to viewing the Moon, is it better to be out in the countryside, somewhere like the Isle of Skye, where there is no light pollution to cause problems for you?

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### CAOIMHÍN:

Chì thu a' Ghealach ann an àite sam bith, gu ìre, ach tha e nas fheàrr airson na rionnagan fhaicinn dha-rìreabh. Tha e fada nas fheàrr a bhith ann an àite dorcha, agus gu mì-fhortanach, san latha an-diugh, feumaidh tu a bhith gu math fad air falbh. Fiù 's nuair a bha mi a' draibheadh air Raineach, bha mi a' faicinn an dath. Stad mi airson cupan cofaidh 's chaidh mi a-mach às a' char, 's a' gabhail iongnadh mu na rionnagan, ach fhathast, chitheadh tu loinnear Glaschu fad às air an taobh seo agus an Gearasdan air an taobh eile. Tha sinn fortanach, uabhasach fortanach, air a' Ghàidhealtachd gu bheil comas againn na rionnagan fhaicinn. Tha daoine air an Talamh fad ceudan de mhiltean de bhliadhnaichean agus a' coimhead seo, agus 's ann dìreach a-nis a tha daoine a' fàs agus beò sna bailtean mòra 's gun a bhith a' faicinn seo idir.

### ANGELA:

A bheil dad sam bith ann a bhiodh tu ag iarraidh fhaicinn a bharrachd air a' Ghealach?

### CAOIMHÍN:

Satharn agus na fàinnean. Bu toigh leam sin fhaicinn gu ceart, agus na gealaich. A bharrachd air aon ghealach againne, tha iomadh gealach aig Iupatar agus bu toigh leam sin fhaicinn. Mar a bha Galileo bliadhnaichean fad' air ais.

### ANGELA:

Mòran taing, a Chaoimhín.

### CAOIMHÍN:

'S e ur beatha.

### CAOIMHÍN:

You can view the Moon from anywhere, to a degree, but it's certainly better for viewing the stars. It's much better to be in a dark place, and unfortunately, in this day and age, you have to be very far away. Even when I was driving on Rannoch Moor, I could see the colour. I stopped to have a cup of coffee, and I got out of the car, and I marvelled at the stars, but still, you could see the glow from Glasgow in the distance on that side and from Fort William on the other side. We are lucky, very lucky, in the Highlands that we are able to see the stars. People have been on Earth for hundreds of thousands of years and viewing this, 40 and it's only now that people are growing up and living in big cities where they can't see this at all.

### ANGELA:

Is there anything else you'd like to view besides the Moon?

### CAOIMHÍN:

Saturn and its rings. I'd love to actually see them and the Moons. Besides our single Moon, Jupiter has many moons and I would like to see them. As Galileo did a long time ago.

### ANGELA:

Thank you, Caoimhín.

### CAOIMHÍN:

You're welcome.