



# Space Intelligence Ltd

Professor Ed Mitchard: [ed@space-intelligence.com](mailto:ed@space-intelligence.com)

GTAI: 22nd April 2021

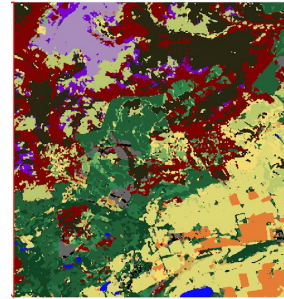
- Company based in Edinburgh, Scotland, founded in 2018
- Focus on using satellite data to plan and monitor Nature Based Solutions projects
- Clients:
  - Private sector (Shell, Brewdog, The Biodiversity Consultancy...)
  - Non-profits (TNC, Zeromission)
  - Governments (NatureScot/Scottish Government)



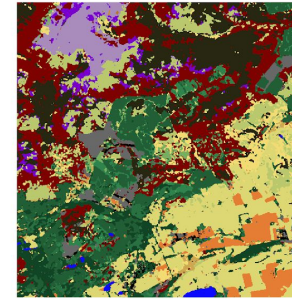
## Habitat Mapper: High accuracy land cover mapping

- Current period
- Historical periods
- Changes between periods

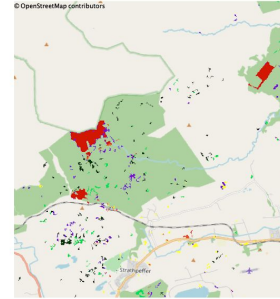
Landcover 2019



Landcover 2020

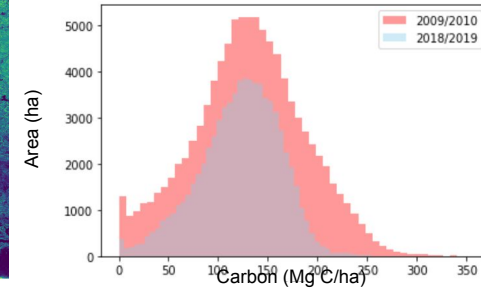
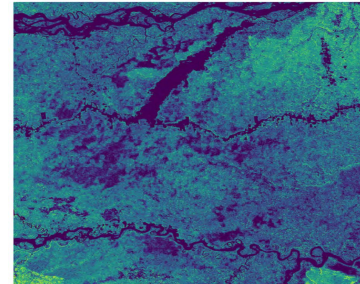


Landcover change



## Carbon Mapper: High accuracy carbon stock mapping

- Unique product on market
- Full carbon benefit of Nature Based Solution activities
- More carbon credits generated from high-precision maps
- Supplied with accuracy assessments



# OUR TEAM



Dr Murray Collins  
CEO



Prof. Ed Mitchard  
CSO



Dr Keiko Nomura  
Senior Analyst



Dr Alexis Moyer  
EO Analyst



Kristian Bodolai  
Developer



Michael Berliner  
PM & Biz Dev



Wietze Suijker  
GeoSpatial Analyst



Marina Ruiz  
Sanchez-Oro  
PhD Student



Carol Blackwood  
GeoSpatial Analyst



Aisling Hurley  
Junior Analyst



Kickstart  
employee  
PR & Ops



Junior  
Developer

## Overall Accuracy: 91%, 22 classes

Landcover Scotland 2019



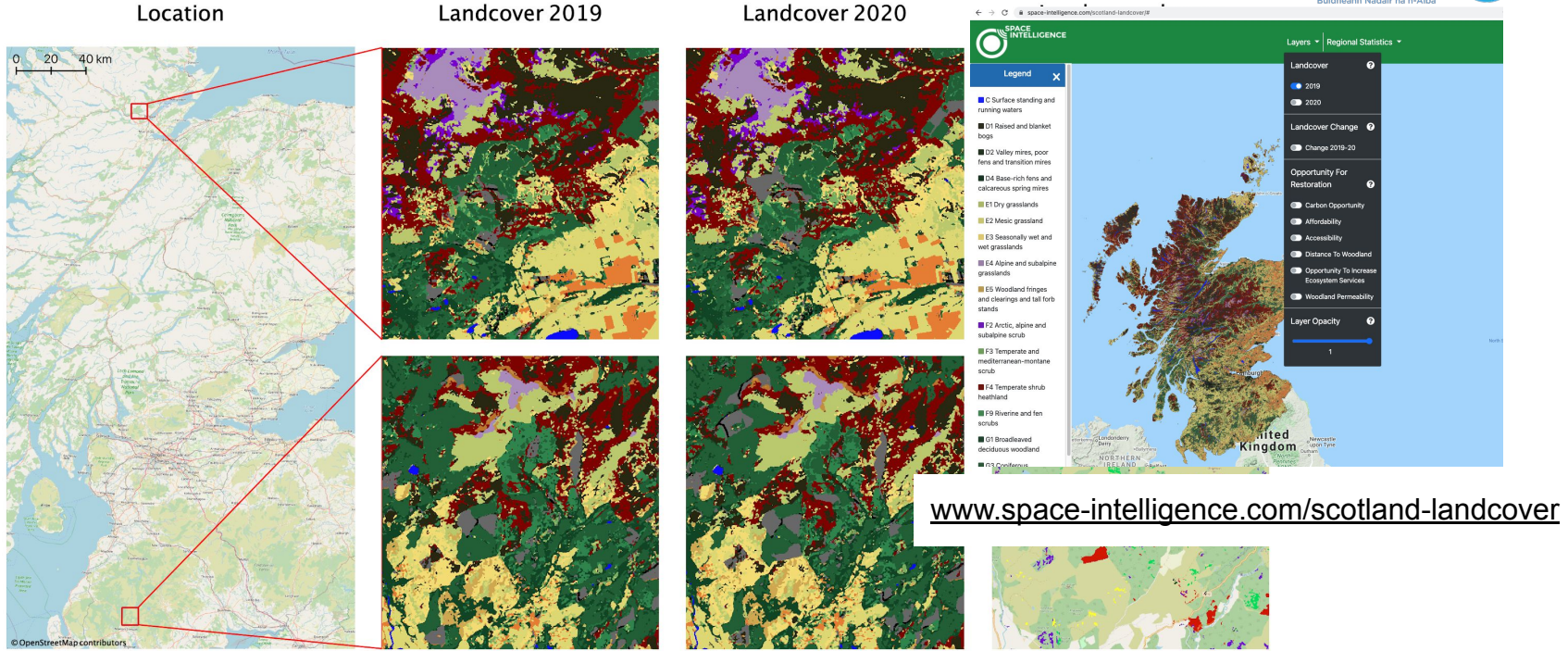
Landcover Scotland 2020

























### Landcover Key

- C:** Water
- D1:** Raised and blanket bogs
- D2:** Valley mires, poor fens and transition mires
- D4:** Base-rich fens and calcareous spring mires
- E1:** Dry grasslands
- E2:** Mesic grasslands
- E3:** Seasonally wet and wet grasslands
- E4:** Alpine and subalpine grasslands
- E5:** Woodland fringes and tall forb stands
- F2:** Arctic, alpine and subalpine scrub
- F3:** Temperate and mediterranean-montane scrub
- F4:** Temperate shrub heathland
- F9:** Riverine and fen scrubs
- G1:** Broadleaved deciduous woodland
- G3:** Coniferous woodland
- G4:** Mixed woodland
- G5:** Young woodland
- H2:** Scree
- H3:** Inland cliffs, rock pavements and outcrops
- I1:** Arable land
- J:** Builtup
- O:** Bare

# LAND COVER CHANGE IN SCOTLAND 2019-2020



## Landcover Key

 C: Water	 E4 : Alpine and subalpine grasslands	 G4 : Mixed woodland
 D1 : Raised and blanket bogs	 E5 : Woodland fringes and tall forb stands	 G5 : Young woodland
 D2 : Valley mires, poor fens and transition mires	 F2 : Arctic, alpine and subalpine scrub	 H2 : Screens
 D4 : Base-rich fens and calcareous spring mires	 F3 : Temperate and mediterranean-montane scrub	 H3 : Inland cliffs, rock pavements and outcrops
 E1 : Dry grasslands	 F4 : Temperate shrub heathland	 I1 : Arable land
 E2 : Mesic grasslands	 F9 : Riverine and fen scrubs	 J : Builtup
 E3 : Seasonally wet and wet grasslands	 G1 : Broadleaved deciduous woodland	 O : Bare
	 G3 : Coniferous woodland	

## Change Key

 1: Agriculture related
 2: Afforestation
 3: Deforestation
 4: Forest growth
 5: Urban development
 6: Water Gain
 7: Water Loss
 8: Other changes

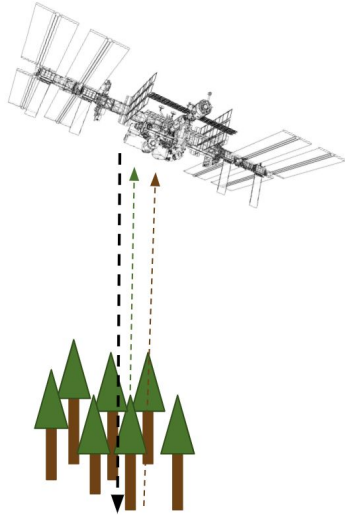
## Carbon in forests

- Mostly in tree stems
- Highly variable in space
- Traditionally difficult to map using satellite data



## Training data

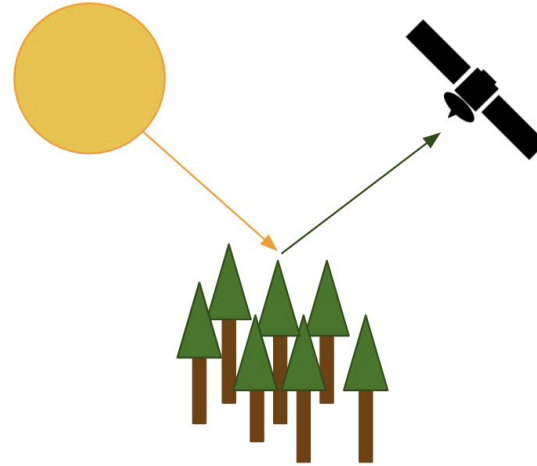
LiDAR



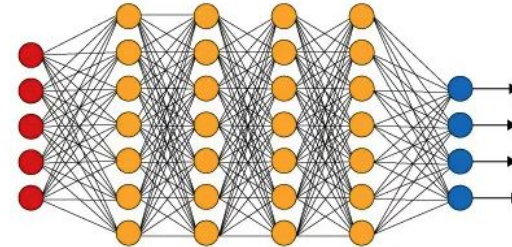
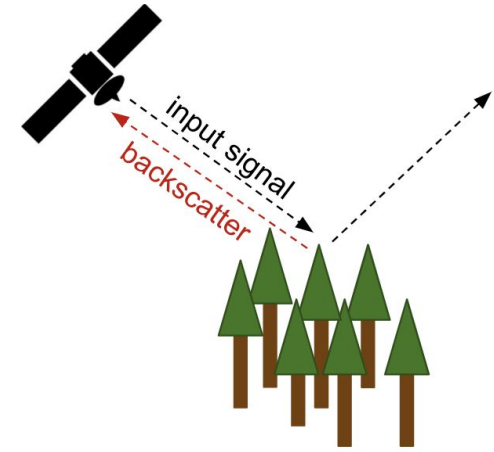
+ field data

## Extrapolation (deep learning)

Optical (passive)



Synthetic Aperture Radar (SAR)





# RECENT SUCCESSES

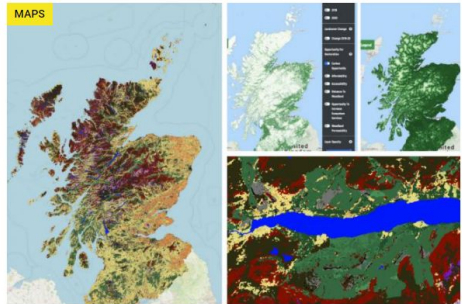


News Election 2021 Sport Politics Voices Business HQ Arts & Ents Features Campaigns Our Writers Notices

NEWS  
1st April

## AI used to tackle climate emergency with incredible satellite maps of Scotland

By Caitlin Hutchison | CaitlinHutchie



AI used to develop satellite images for Scotland's first nationwide high-resolution maps

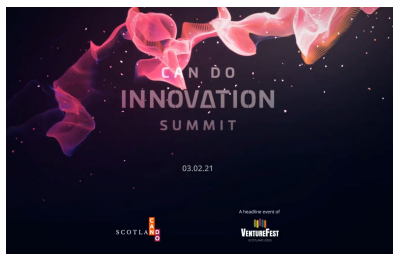
1 comment

Scotland's first ever nationwide high-resolution habitat map has been launched.

It's hoped the satellite images can provide insight into how the country's landscapes are changing over time, while examining the potential of artificial intelligence to make positive change for the environment.

### MOST READ COMMENTED

- Tom Gordon: Something doesn't smell right about the Alba Party
- Janey Godley: Drinking alcohol in parks should be banned for everyone or open to all
- Alba party could cost SNP its majority, new poll suggests
- Letters: Why are Glasgow's residents being denied the use of Pollok Park for recreation?
- Nicola Sturgeon to unveil free breakfast and lunch plan for every primary school pupil



2021: Winner top 3 SME selected for National Innovation Showcase: "Can Do Innovation Summit" 3rd Feb 2021



2020: Ranked 8th most innovative tech company in Scotland (Business Cloud's Tech Top 50)

Space Intelligence @SpaceIntelli

Great to be mentioned in the House of Commons today! Thanks @OwenThompson for saying "Companies like @ecometrica, @Carbomap and @SpaceIntelli who are helping move Edinburgh to become the space data capital of Europe." @CanDoScotland @BayesCentre

2.3K views 0:02 / 0:53

5:31 PM · Feb 4, 2021 · Twitter Web App

26 Retweets 5 Quote Tweets 77 Likes



Front Cover Business HQ magazine, Dec 2020



# Questions

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