



ORCHESTRA
OCEAN • CLIMATE • CARBON

ORCHESTRA

Science Meeting

10th - 11th July 2017

Aurora Cambridge, British Antarctic Survey





Timetable

Arrive Sun 9 July

18:30 PAG + MC dinner

Monday 10 July

08:45 – 09:00 Arrival, registration
09:00 – 09:30 Welcome + PAG introductions
09:00 – 11:00 Session 1 – WP1
11:30 – 12:30 Session 2 – WP1
12:30 – 13:30 Lunch
13:30 – 15:10 Session 3 – WP2
15:40 – 17:00 Session 4 – WP2
19:30 Dinner

Tuesday 11 July

09:00 – 10:45 Session 5 – WP3
11:15 – 12:30 Session 6 – WP3
12:30 – 13:30 Lunch
13:30 – 16:15 Session 7 – RoSES and collaborative projects + interactions

Venues

- MEETING VENUE:** Aurora Cambridge Conference Theatre, British Antarctic Survey, High Cross, Madingley Road, Cambridge, CB3 0ET. Reception: 01223 221400
<https://www.bas.ac.uk/science/science-and-innovation/aurora-cambridge/>
- TRAVEL:** Attendees are asked to make their own travel arrangements for the event. Travel options are included in this document. Parking is limited.
- CONFERENCE DINNER:** Monday 10 July 7:30pm-23:00, Trinity Hall, Trinity Lane, Cambridge, CB2 1TJ. The Graham Storey Room - three course meal sit down meal (pre-ordered).
- ACCOMMODATION:** Attendees are asked to make their own arrangements for accommodation. A list of hotels can be found in this document.
- PAG/MC DINNER** [SIX restaurant](#) at the Varsity Hotel, Thompson's Lane, Cambridge, CB5 8AQ. (SIX is located on the top floor beneath The Roof Top Garden of The Varsity Hotel). Tel: 01223 30 80 30.



Programme

| Monday 10 July | | | |
|----------------|---|-----------------|----------------|
| Time | Activity | Speaker | Chair |
| 08:40 | Arrival and Registration | | |
| 09:00 | Welcome | Mike Meredith | |
| 09:15 | Programme Advisory Group (PAG) introductions | Mark Brandon | |
| 09:30 | Session 1 – WP1 | | Liz Kent |
| 09:30 | WP1 overview | Liz Kent | |
| 09:50 | Heat and CO2 flux measurements from the JCR | Tom Bell | |
| 10:10 | ORCHESTRA aircraft observations of the surface and atmospheric boundary layer with the BAS MASIN set up | Alexandra Weiss | |
| 10:30 | Ocean adjoint modelling in ORCHESTRA | Dan Jones | |
| 11:00 | Group photo - balcony | | |
| 11:05 | Break | | |
| 11:30 | Session 2 – WP1 | | Liz Kent |
| 11:30 | Impacts of surface fluxes and their variability on ocean circulation | Dave Munday | |
| 11:50 | Understanding CMIP5 and Hadley Centre Southern Ocean biases | Pat Hyder | |
| 12:10 | WP1 discussion session | | |
| 12:30 | Lunch | | |
| 13:30 | Session 3 – WP2 | | Andrew Meijers |
| 13:30 | WP2 overview | Andrew Meijers | |
| 13:50 | The ORCHESTRA glider programme: from surface fluxes to the mixed layer to the abyss | Alex Brearley | |
| 14:10 | Connecting Southern Ocean Mixed Layer Variability to Surface Forcing | Simon Josey | |
| 14:30 | Met Office CMIP6 simulations | Jeff Ridley | |
| 14:50 | The way toward the future GO8 configuration | Pierre Mathiot | |
| 15:10 | Break | | |
| 15:40 | Session 4 – WP2 | | Andrew Meijers |
| 15:40 | Modelling development for ORCHESTRA | George Nurser | |
| 16:00 | Sea Ice Modelling: impacts on ocean | Yevgeny Aksenov | |
| 16:20 | WP2 Discussion session | | |
| 17:00 | Close of day one. | | |
| 19:30 | Conference dinner at Trinity Hall , Cambridge. | | |



| Tuesday 11 July | | | |
|-----------------|--|----------------------------------|---------------|
| Time | Activity | Speaker | Chair |
| 09:00 | Session 5 – WP3 | | Brian King |
| 09:00 | WP3 overview | Elaine McDonagh | |
| 09:15 | SR1b results | Yvonne Firing | |
| 09:30 | Updates on A23 and Orkney Passage | Povl Abrahamsen | |
| 10:00 | Transports of heat and freshwater in the South Atlantic | Ben Moat | |
| 10:15 | Satellite Measurements of Ice-Ocean Interactions in the Southern Hemisphere | Anna Hogg | |
| 10:30 | Oxygen isotopes as freshwater tracers in ORCHESTRA | Mike Meredith | |
| 10:45 | Break | | |
| 11:15 | Session 6 – WP3 | | Brian King |
| 11:15 | South Atlantic Interbasin Exchange of Carbon | Elaine McDonagh for Pete Brown | |
| 11:30 | Confronting climate models with observations in the Southern Ocean | Helene Hewitt | |
| 11:45 | Water mass variability in different projection scenarios | Andrew Meijers | |
| 12:00 | WP3 Discussion session | | |
| 12:30 | Lunch | | |
| 13:30 | Session 7 – RoSES and Collaborations | | Mike Meredith |
| 13:30 | RoSES - Role of the Southern Ocean in the Earth System (NERC programme) | | |
| 13:40 | CUSTARD (Carbon Uptake and Seasonal Traits in Antarctic Remineralisation Depth) | Steph Henson for Adrian Martin | |
| 14:00 | PICCOLO (Processes Influencing Carbon Cycling: Observations of the Lower limb of the Antarctic Overturning) | Tom Bell for Karen Heywood | |
| 14:20 | SONATA (Southern Ocean optimal Approach To Assess the carbon state, variability and climatic drivers) | Corrine Le Quere | |
| 14:40 | SOCOM - Southern Ocean Carbon and Climate Observations and Modeling. (NSF) | Lynne Talley for Jorge Sarmiento | |
| 15:00 | TICTOC - Transient tracer-based Investigation of Circulation and Thermal Ocean Change. (NERC large grant) | Elaine McDonagh | |
| 15:20 | GO-SHIP – Global Ocean Ship-Based Hydrographic Investigations Program | Lynne Talley | |
| 15:40 | Discussion and project interactions. | Mike Meredith | |
| 16:15 | End of meeting | | |



List of Attendees

| Name | Organisation | ORCHESTRA WP/Role | RoSES? |
|----------------------|--|------------------------|-------------|
| Adam Blaker | National Oceanography Centre | WP3 | |
| Adriano Lemos | Centre for Polar Observation and Modelling | | |
| Alexander Brearley | British Antarctic Survey | WP2, MC | |
| Alexandra Weiss | British Antarctic Survey | WP1 | |
| Andrew Meijers | British Antarctic Survey | WP2 Leader | |
| Anna Hogg | Centre for Polar Observation and Modelling | WP3, MC | |
| Anna Jones | British Antarctic Survey | | SONATA |
| Ben Moat | National Oceanography Centre | WP3 | |
| Brian King | National Oceanography Centre | WP2 WP3 | SONATA |
| Chris Wilson | National Oceanography Centre | WP3 | |
| Christian Buckingham | British Antarctic Survey | WP3 | |
| Clara Manno | British Antarctic Survey | | PICCOLO |
| Colin Jones | NCAS and Met Office | PAG | PAG |
| Corinne Le Quéré | University of East Anglia Tyndall Centre | | SONATA |
| Dan Jones | British Antarctic Survey | WP1 WP2 | |
| Dave Munday | British Antarctic Survey | WP1 | |
| Dorothee Bakker | University of East Anglia | | PICCOLO |
| Elaina Ford | British Antarctic Survey | Programme manager | coordinator |
| Elaine McDonagh | National Oceanography Centre | WP3 Leader | SONATA |
| Elizabeth Kent | National Oceanography Centre | WP1 | |
| Emily Shuckburgh | British Antarctic Survey | | SONATA |
| Emma Boland | British Antarctic Survey | WP1 | |
| George Nurser | National Oceanography Centre | WP1 WP2 WP3, MC | |
| Giuseppe Foti | National Oceanography Centre | WP1 | |
| Harry Holt | British Antarctic Survey | | |
| Heather Graven | Imperial College London | TICTOC | |
| Helene Hewitt | Met Office | WP1 WP3, MC | |
| Hugh Venables | British Antarctic Survey | WP2 | CUSTARD |
| James Harle | National Oceanography Centre | WP2 | |
| Jean Baptiste Sallee | LOCEAN-IPSL | WP2 | |
| Jeff Ridley | Met Office | WP2 | |
| Jessica Surma | NERC | NERC PM | NERC PM |
| Joanna Lester | Imperial College | TICTOC | |
| Joel Hirschi | National Oceanography Centre | WP3 | |
| Louise Biddle | University of Gothenburg | | |
| Lynne Talley | Scripps Institution of Oceanography | SOCCOM GO-SHIP | |



| | | | |
|---------------------|------------------------------|---------------------|---------|
| Margaret Yelland | National Oceanography Centre | WP1 Leader | |
| Marie-Jose Messias | University of Exeter | TICTOC | |
| Mark Brandon | Open University | PAG | PAG |
| Michel Tsamados | University College London | WP3 | |
| Miguel Maqueda | Newcastle University | | |
| Mike Meredith | British Antarctic Survey | PI. WP1 WP2 WP3 | |
| Nina Fox | British Antarctic Survey | Programme Admin | PA |
| Oana Dragomir | National Oceanography Centre | WP3 | |
| Parv Suntharalingam | Univ. of East Anglia | | SONATA |
| Pat Hyder | Met Office | WP1 WP2 WP3 | |
| Pierre Mathiot | Met Office | WP2 | |
| Povl Abrahamsen | British Antarctic Survey | WP3 | |
| Rachael Sanders | British Antarctic Survey | WP2 | |
| Rachel Tilling | University of Leeds | | |
| Russ Ladkin | British Antarctic Survey | | |
| Simon Josey | National Oceanography Centre | WP2 | |
| Stephanie Henson | National Oceanography Centre | | CUSTARD |
| Sudipta Goswami | British Antarctic Survey | WP2 | |
| Tim Smyth | Plymouth Marine Laboratory | WP1, MC | |
| Tom Bell | Plymouth Marine Laboratory | WP1 | PICCOLO |
| Tom Lachlan-Cope | British Antarctic Survey | WP1 | |
| Yevgeny Aksenov | National Oceanography Centre | WP2 | |
| Yvonne Firing | National Oceanography Centre | WP3 | |



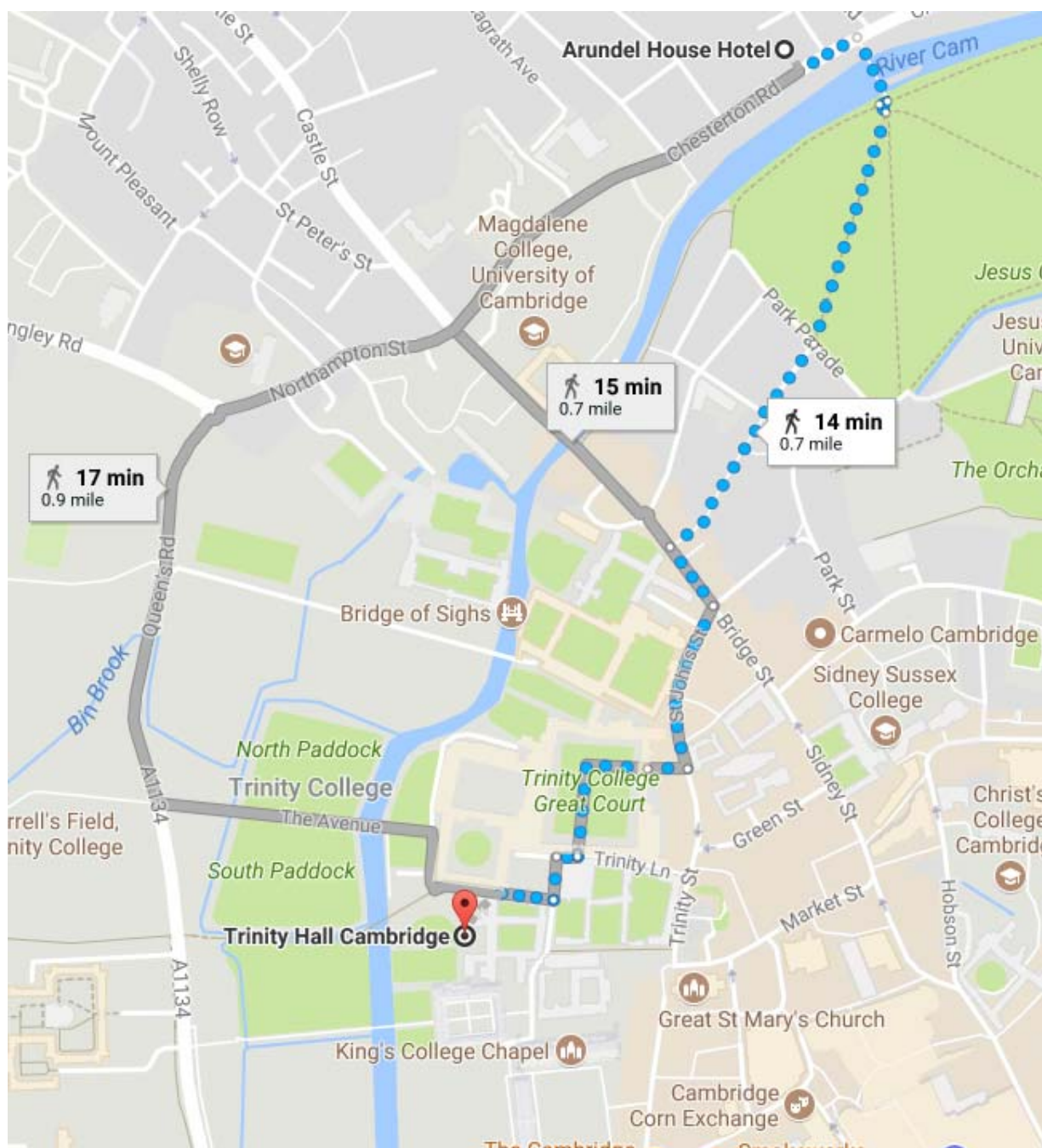
Conference Dinner - Monday 10 July

A Conference Dinner will be held at [Trinity Hall](#), Trinity Lane, Cambridge, CB2 1TJ. T: 01223 332500 Cambridge on Monday 10 July commencing at 7.30pm.

The dinner will be held in the Graham Storey Room at the [Central Site](#) of Trinity Hall.

For pedestrian access to the Central Site at Trinity Hall, please see the map [here](#). The map below shows the pedestrian route from the Arundel Hotel. The main entrance can be found at the Porter's Lodge in Trinity Lane.

There are no car parking facilities at the Trinity Hall Central Site.

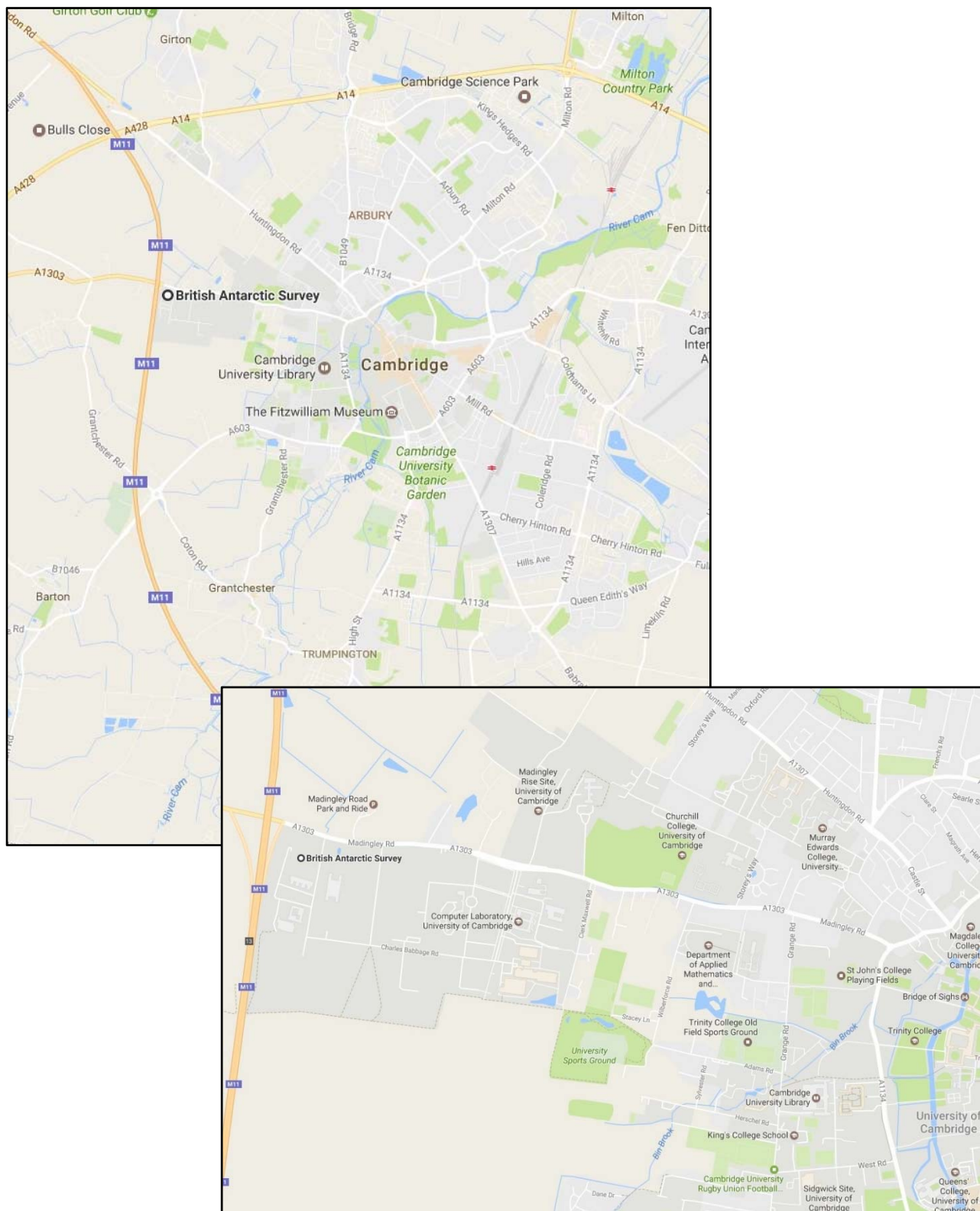




Travelling to BAS

[British Antarctic Survey](#), High Cross, Madingley Road, CB3 0ET. Tel: 01223 221400

BAS in relation to Cambridge City Centre





Travelling to BAS by train

The nearest rail station is Cambridge. There are direct trains from London (King's Cross Station and Liverpool Street Station) which take about one hour; and London Stansted Airport which take about 35 minutes. For those arriving in London by Eurostar train services, the Eurostar terminal at London St Pancras International is five minutes' walk from Kings Cross Station.

Timetable information on trains to Cambridge from anywhere in the UK can be found using:

- National Rail website (www.nationalrail.co.uk)
- National Rail enquiries on +44 (0)8457 48 49 50
- National Rail TrainTracker™ automated enquiry service +44 (0)871 200 49 50
- National Rail TrainTracker™ Text on 8 49 50 (text your station or journey).

There is a taxi rank immediately outside Cambridge rail station. A taxi from the station to BAS costs around £8 - £10. There is also a Cycle Hire shop in the railway station car park.

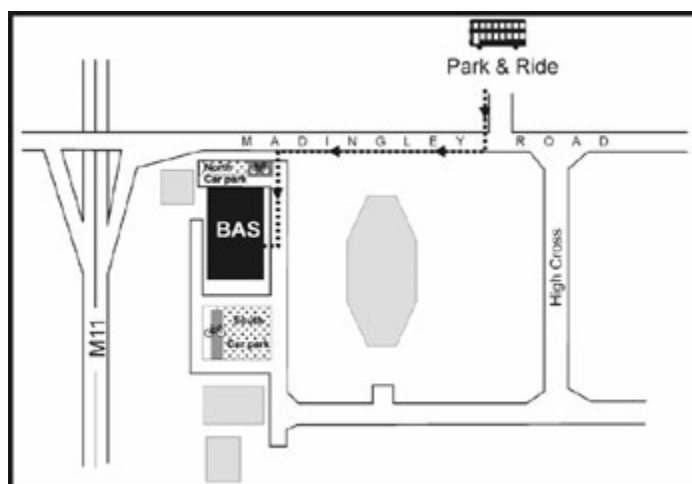
Travelling to BAS by bus (from the railway station)

To the city centre:

- Universal Bus - this is the only direct bus from the railway station to West Cambridge/Madingley Road Park & Ride. It leaves every fifteen minutes from Stop 8 just outside the station. It is run by Whippet - currently a day ticket is £3, one journey £2 or a weekly pass is £10.
- The Citi 1, Citi 3, Citi 7 and Citi 8 bus services run frequently between the rail station and the city centre. All buses to the city centre go from the bus stops on the road to the left as you come out of the rail station - turn left as you leave the station, cross on the zebra crossing and turn left again. All stops on this side of the road go through Cambridge City Centre.
- If you travel to the City Centre, you will need to catch the Madingley Road Park & Ride bus from stop S3 right outside the Grand Arcade. A return ticket will cost you £3.
- The city centre bus station is on Drummer Street. Most bus services will stop here. The No 4 bus to Camborne leaves from Stop D3 on Emanuel Street – this bus departs every 20 minutes and stops very close to BAS on Madingley Road. A Day Rider ticket allowing unlimited travel within the city on all buses for one day currently costs £4.10, and a Mega Rider 7 day ticket costs £14.

To BAS:

The Madingley Road Park and Ride bus station is directly across the road from the British Antarctic Survey and buses run every 10 minutes between here and the city centre. As you leave the Park and Ride entrance on the right hand side, on foot, turn right onto Madingley Road, cross over the road and walk until you reach a gap in the fence directly by the No 4 bus stop, then walk directly ahead until you reach the BAS Entrance and Reception to your right - approximately in the centre of the east face of the building. Walking to BAS from the Park & Ride bus terminal:





Driving to BAS in Cambridge - Directions from the M11 and A14

From the south and from London via the M11:

- Leave the M11 at Junction 13 (signposted Cambridge/A1303/Bedford/A428)
- Turn right onto the A1303/Madingley Road (signposted Cambridge A1303)
- Turn right onto High Cross (signposted High Cross)
- Turn right at T junction (onto Charles Babbage Road - not signposted)
- Turn right
- Please follow signs for parking at BAS, and proceed on foot to BAS Reception.

From the north, east and west via the A14:

(The M1, A1, A1(M) and M6 all link to the A14 dual carriageway)

- Leave the A14 at junction 31 and join the A1307/Huntingdon Road (signposted A1307/Cambridge)
- At traffic signals, get into the right hand lane (signposted Ring Road Newnham, Trumpington...) and continue forward onto the A1134/Castle Street
- At traffic signals, stay in the right hand lane (signposted Ring Road) and turn right onto the A1134/Mount Pleasant
- Bear left onto Shelly Row (following the one-way system)
- Bear right onto Albion Row (signposted Ring Road)
- Continue forward onto Lady Margaret Road
- At traffic signals get into the right hand lane and turn right onto the A1303/Madingley Road (signposted London (M11), Bedford...)
- Turn left onto High Cross (signposted High Cross)
- Turn right at T junction (onto Charles Babbage Road - not signposted)
- Turn right.

Please follow signs for parking at BAS, and proceed on foot to BAS Reception.

From north, east and west via the M11 (avoiding city centre traffic):

To avoid city centre traffic, you can use the M11 to get to BAS, which is just east of Junction 13. You can get to the M11 southbound from the A14. However, there is no southbound exit at Junction 13 of the M11. Instead, you will need to:

- Leave the M11 at Junction 12
- At the roundabout take the 3rd exit onto A603/Barton Road
- At the roundabout, take the 2nd exit to rejoin the M11 northbound (signposted A14/A10/Huntingdon)
- Leave the M11 again at Junction 13 (signposted Cambridge/A1303/Bedford/A428)
- Turn right onto the A1303/Madingley Road (signposted Cambridge A1303)
- Turn right onto High Cross (signposted High Cross)
- Turn right at T junction (onto Charles Babbage Road - not signposted)
- Turn right
- Please follow signs for parking at BAS, and proceed on foot to BAS Reception.



Travelling to BAS by air

Cambridge is served by three major airports:

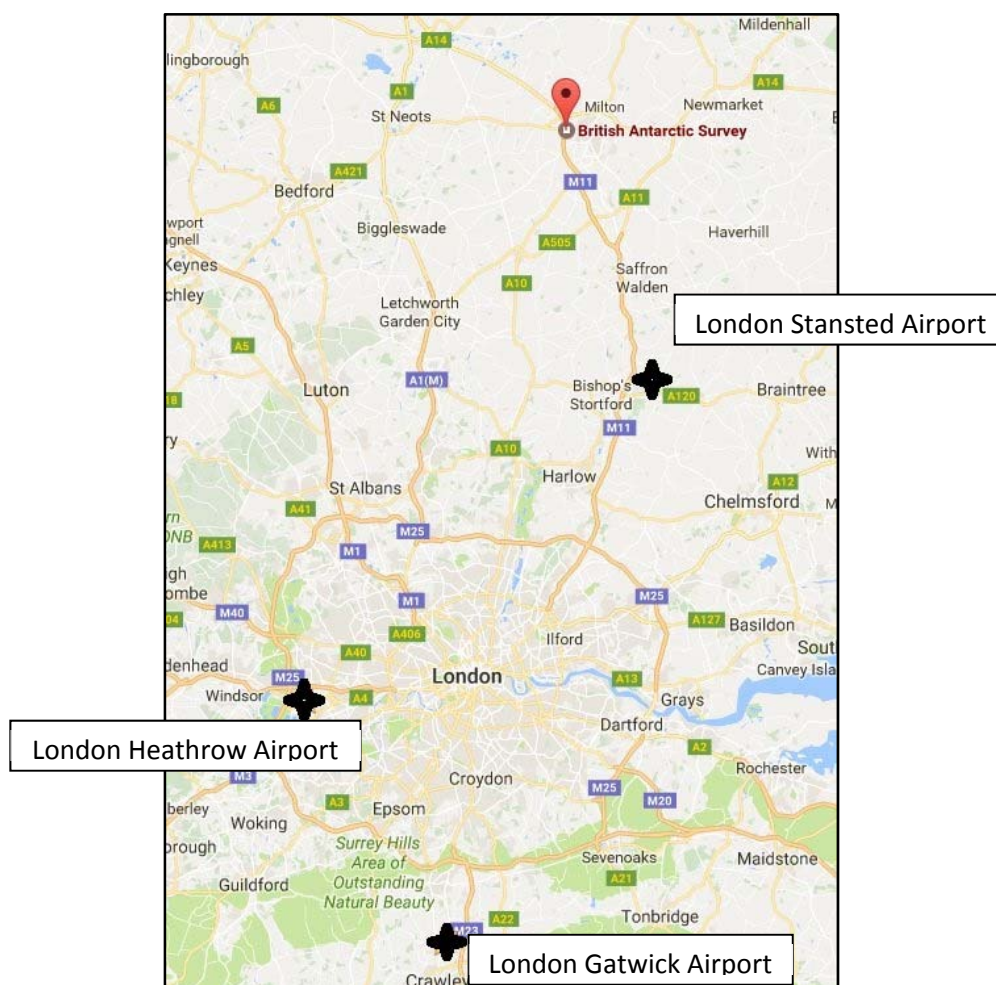
- London Stansted (the closest)
- London Heathrow
- London Gatwick (the furthest away).
-

From **London Heathrow**, the London Underground Piccadilly Line connects to Kings Cross Station and trains to Cambridge.

From **London Gatwick**, frequent “Thameslink” services run from the airport to London St Pancras, which is five minutes’ walk from Kings Cross Station. This gives a much quicker connection to Cambridge than the coach service.

From **London Stansted**, Cambridge can be easily reached by rail, coach or taxi:

- there is a direct train to Cambridge, which takes 35 minutes and costs around £10 one way;
- there are National Express coach services to Cambridge from all three airports and a one way ticket costs around £10 - £30 (www.nationalexpress.com)
- a taxi from London Stansted Airport to BAS will take around 40 minutes.





Accommodation

Please make your own accommodation arrangements for the ORCHESTRA Science meeting, in accord with your requirements and budget. There is a large range of hotels and guest houses in Cambridge. A small sample is listed below, with links to their websites for booking. If you require any advice or assistance, please contact Nina Fox: ninx@bas.ac.uk

Arundel House Hotel
Chesterton Road
Cambridge
CB4 3AN
Tel: 01223 367701
Fax: 01223 367721
www.arundelhousehotels.co.uk

Lantern House
174 Chesterton Road
Cambridge
CB4 1DA
Tel: 01223 359980
<http://www.guesthousecambridge.net/>

Hotel Felix
Whitehouse Lane
Huntingdon Road,
Cambridge
CB3 0LX
Tel: 01223 277977
www.hotelfelix.co.uk

Hilton Cambridge City Centre
Downing Street
Cambridge
CB2 3DT
Tel: +44 (0) 1223 464491
<http://www3.hilton.com/en/hotels/united-kingdom/hilton-cambridge-city-centre-STNHCHI/index.html>

The Gonville Hotel
Gonville Place
Cambridge
CB1 1LY
Tel: 01223 366611
<http://www.gonvillehotel.co.uk/>

Lensfield Hotel & Spa
53 Lensfield Road
Cambridge
CB2 1EN
Tel: 01223 355017
www.lensfieldhotel.co.uk

Warkworth Guest House
Warkworth Terrace
Cambridge. CB1 1EE
Tel: 01223 363682
Fax: 01223 709934
www.warkworthhouse.co.uk

Rectory Farm
Madingley Road
Cambridge, CB23 7PG
Tel: (+44) 7742 272115 or
(+44) 7734 861072
<https://www.rectoryfarm.net/>
(Within walking distance of BAS - not in City Centre)

Additional accommodation can be found at
<http://www.visitcambridge.org/accommodation>
All of the above mentioned are subject to availability



Restaurants in Cambridge

If you are staying in the city centre of Cambridge, there are numerous restaurants within walking distance to choose from. A selection of restaurants are listed below. A number of restaurants can also be found using the following link: <http://www.visitcambridge.org/food-and-drink/restaurants>

La Raza
4-6 Rose Crescent
Cambridge
Cambridgeshire
CB2 3LL
Tel: 01223 464550
<http://laraza.co.uk/>

Las Iguanas
Quayside
Cambridge
CB5 8AB
Tel: 01223 460540
<http://www.iguanas.co.uk/>

The River Bar Steak House and Grill
Off the Boardwalk
Quayside
Cambridge
CB5 8AQ
Tel: 01223 307030
<http://www.riverbarsteakhouse.com/>

Loch Fyne Seafood and Grill
37 Trumpington Street
Cambridge
CB2 1QY
<http://www.lochfyne seafood and grill.co.uk>

St John's Chop House
21-24 Northampton Street
Cambridge
CB3 0AD
Tel: 01223 353110
<http://www.cambscuisine.com>

Galleria Restaurant
33 Bridge Street
Cambridge
CB2 1UW
Tel: 01223 362054
<http://www.galleriacambridge.co.uk/>

Raja Indian Cuisine
60 King Street
Cambridge
CB1 1LN
Tel: 01223 301501
<http://www.rajaindiancuisine.co.uk/>

De Luca Cucina & Bar
83 Regent Street
Cambridge
CB2 1AW
Tel: 01223 356666
<http://www.delucacucina.co.uk/>

Varsity Restaurant
35 St Andrews Street
Cambridge
CB2 3AR
<http://www.varsityrestaurant.co.uk/>

Wagamama
36a St Andrews Street
Cambridge
CB2 3AR
<https://www.wagamama.com>