

# Mount Everest Foundation Expedition Reports

SUMMARISED BY JONNY DRY

The Mount Everest Foundation was established as a registered charity following the successful ascent of Everest in 1953. It was financed initially using surplus funds and subsequent royalties from that expedition. It provides financial support for expeditions of an exploratory nature in mountain areas, and is administered by trustees appointed by the Alpine Club and the Royal Geographical Society.

The exploration is mainly of a geographical nature, but may also cover disciplines such as geology, botany, zoology, glaciology and medical research. In return for the funding the MEF requires only a comprehensive report, and copies of these reports are lodged with the AC and the RGS. The reports can be consulted at these establishments, or alternatively online.

The MEF has made total grants of well over £1m to more than 1,600 expeditions with members from the UK and New Zealand. Donations to allow us to continue with this work are always welcome. We particularly encourage donations from former beneficiaries of MEF grants.

In 2019 we supported 31 expeditions with grants totalling £68,000. The following notes summarise the 2019 expedition reports; full reports are now available on the Alpine Club Library website.

## NORTH AMERICA

### **Cardiopulmonary and Cerebrovascular Acclimatisation in Children –**

Mike Stembridge, Joseph Donnelly, Ali McManus and Philip Ainslie

The expedition team, drawn from several universities, spent 11 days at the White Mountain Research Station in order to further understand acclimatisation to high altitude in children. Currently, there is no scientific data to support safe ascents in children; current advice given by the Union Internationale des Associations d'Alpinisme for children > 14 weeks old is drawn from advice for adult trekkers. It is hoped data gathered from this expedition will begin to fill that knowledge gap. Arriving in August the team collected their baseline data at the University of California before travelling onwards to Crooked Creek Station (3050m) and the Barcroft Laboratory. Once here they established their field laboratory to collect the last of their data.

MEF ref 19-03.

**North Face of Thunder Mountain –** Tim Blakemore and Mike 'Twid' Turner  
Travel to the north face of Thunder Mountain was hindered for several days due to poor weather before the team was dropped by aircraft. Once established they found their objective covered in recent snowfall but noted three

potential lines on the face: a line with high avalanche risk to the right of the original line climbed by Jack Tackle and Jim Donini; a right-slanting ramp giving access to the main wall which was capped by a large snow mushroom; and a line on the right-hand side of the face that looked possible but was found to be at high risk of serac collapse. With all three options considered too dangerous in the current conditions, they moved to Mount Hunter where they again found poor conditions and further poor weather that covered their intended route in large amounts of snow. They moved again to a third objective further east on the West Fork of Ruth but were shut down again by heavy snowfall that saw them unable to climb and repeatedly digging out the tent. From here they decided any potential weather and condition window was unlikely and were picked up by plane. They note that their experience is indicative of a shift in the Alaskan climbing season; winters are colder with less potential for snow and therefore ice, equally storms seem to now be coming later in the year in May rather than April as was often historically the case. They suggest that the ideal conditions normally found in May have now shifted to June and climbers may likely find better success going later in the year.

MEF ref 19-07.

**Baffin Paddle Climb** – Bronwyn Hodgins, Jacob Cook, Thor Stewart, Zack Goldberg-Poch

Flying first into Pangnirtung, the team paddled 30km up the Pangnirtung Fjord over eight hours before hiking another 30km further up the valley to their base camp at Summit Lake. They established an advanced base camp at the confluence of Parade and Caribou glaciers where they split to make varying ascents. Bronwyn and Jacob made a new route they called *Never Laugh at Live Dragons* on the South Tower of Mount Asgard, whilst Thor and Jack made a likely second free ascent of *Polar Thievery* on the North Tower. After a few days rest, Bronwyn and Jacob made a three pitch variation to the Scott-Henneck route which they graded at 5.11+, and Thor and Zack made a first ascent of a 5.10+ route on Mount Midgard. The team linked back together and paddled onwards to Mount Thor where they made a full team ascent via the south ridge. Bronwyn and Jacob then went on to make a further first ascent of a 5.13- line they named *The Niv Mizzet Line*, climbing the line over two days. Thor and Zack rounded the trip off with a possible first recorded ascent of Ulu Peak by a 5.10+ line they named *The Beached Whale*. They evacuated the same way they approached, arriving back in Pangnirtung after eight hours of paddling.

MEF ref 19-10.

**Oasis Peak Expedition** – Simon Richardson and Mark Robson

From research in advance of the expedition, the pair believe they were likely the first documented expedition to North Baird glacier in over 40 years. They set themselves two objectives: to make the first ascent of the west face of Oasis Peak and explore further unclimbed mountains north and west of it. They reached the glacier from the village of Petersburg by helicopter but found conditions were extremely unfavourable, with heavy

snow lying everywhere forming large cornices and snow mushrooms. The temperature was also warmer than expected and with little overnight freezing, they moved instead to the North Arm of the North Baird glacier. Here they noted a large number of unclimbed peaks, the largest of which was 7180m. With a 24-hour gap in the weather they made a successful ascent up a 1,200m route via the south-east face and north-east ridge and went on to successfully climb a further four peaks of around 5,800m before flying out.

MEF ref 19-14.

### **Mount Crillon Expedition** – Paul Knott and Jacob Downie

After almost a week of delay due to insufficient visibility for the glacier landing, the team reached base camp on the Brady glacier close to the east ridge of Mount Crillon. Deep soft snow meant difficulty for the aircraft but after landing safely and establishing camp they began making an access route towards the start of the route on the 11 April. However the team got no further after a series of fronts carrying significant snowfall and poor freezes prevented further safe activity. Following a forecast update projecting a continuation of the same pattern until at least 23 April, they decided they would have insufficient time to climb Mt Crillon, or any other significant objective, even if conditions subsequently improved. With this decision made they requested a pick up and flew out during a brief clearance of weather. Once back they saw that the unsettled and at times stormy low-pressure weather continued in the area, and any high pressure that might have allowed for climbing did not commence until 27 April which would have been too close to their originally planned departure date. The ridge remains a substantial unclimbed line in Alaska, having only seen two other recorded expeditions by Loren Adkins and Paul Barnes in 1988, and Paul Knott and Kieran Parsons in 2014.

MEF ref 19-25.

## **SOUTH AMERICA**

### **Novel Remote Sensing of Glacial Change** – Liam Taylor, Duncan Quincey, Mark Smith, Lee Brown, Joshua Chambers, Joshua Wolstenholme and Michael Grimes

The expedition from the University of Leeds travelled to Peru to test a novel remote-sensing system providing real-time assessment of glacial change. When published, the data should help inform how glaciers in the Cordillera Vilcanota are responding to climate change. After experiencing problems getting their equipment through Peruvian customs, the team conducted a limited survey of the Quelccaya ice cap using the equipment they had. However the bulk of their research was conducted two months later after they returned to the area following confirmation of further funding and the arrival of the rest of the equipment. Despite now working in the midst of the rainy season, they deployed 16 of the 30 planned cameras which produced accurate 3D models and managed to capture a major calving event which raised the level of the outflow lake by approximately 1cm. With this data

they hope to be able to model the glacier in more detail and predict with greater accuracy when it is leaning before calving. The team plan to return again in 2020 to place the rest of the equipment and build a more complete picture of the glacier. MEF ref 19-13.

**Jorge Montt Glacier Ski Expedition** – Marian Krogh and Stephanie Jones  
 This team of two had the joint objectives in Chile of exploring both the Jorge Montt glacier and Chico glacier on skis and kayak to make the expedition entirely human powered. After kayaking for four days in to the Jorge Montt glacier from Tortel, the team hiked further up the glacier to set a base camp where they could begin to identify potential routes onto the icefield. They tried a number of routes but were forced to retreat in the face of often heavily vegetated conditions. They instead changed tack and relocated to Villa O'Higgins where they assessed their options to access the southern icefield by the Chico glacier. After crossing Lago O'Higgins they began their approach from Lago Chico and reached the glacier three days later. They continued up the glacier for a further day, reaching the upper section before they received reports of approaching storms and decided to retreat. MEF ref 19-30.

## GREENLAND & ICELAND

**Scoresby Sund, Renland** – Tom Harding, Niall Newport, Cameron Ree and Neil Cox

After overcoming initial delays due to excessive sea ice the team arrived at their desired objective on Renland. They established successive mid and high camps further up the valley over eight days. Once there they spent 10 days making six ascents up to AD+, one of which was a second ascent of The Bastion and the remainder of which were first ascents. Most routes were between 300m and 400m in length and involved mixed conditions on both snow and rock. They experienced good conditions for the majority of the trip with temperatures often above freezing and only two short periods of bad weather. Whilst most of the remaining unclimbed summits are easy snow peaks, there is extensive potential for further climbing, including an impressive 700m big wall facing eastwards that saw attention in 2016 but is yet to see an ascent. MEF ref 19-08.

**UAV Glaciological Analysis** – Nathaniel Baurley and Chris Tomsett

The original objective was to carry out UAV surveys of the Breiðamerkurjökull and Fjallsjökull glaciers. However, due to time and logistical constraints, the expedition decided to focus solely on surveying the Fjallsjökull, and spent five days gathering data. On the first day they set their control points and marked out various locations with DGPS before taking the first initial UAV surveys. The second day they were unable to undertake work due to adverse weather conditions and continued instead on the third day where they gather a full set of UAV surveys. Then the weather closed

in again and after being kept inside for the fourth day they collected their control points on the fifth day and returned to Reykjavik. There is substantial potential for future research into glacier dynamics and hydrology, and the team hope to return in 2020 for a longer period in order to expand the data set further with a more advanced UAV, capable of undertaking longer and more remote surveys of the glacier. This data will ultimately provide more insight on velocity, hydrology and calving activity that can inform the understanding of how glaciers will develop into the future. MEF ref 19-15.

**Greenland West Coast** – Gabriel Clarke, James Steevenson, Sam Nunn, Henry Francis, Mark Harris and Oscar Van Simina

After three years of planning, the expedition set sail from the UK to Greenland, aiming to explore north of Nuuk as far as Uummannaq Fjord and establish new routes along the coast as they went. After purchasing and refitting a 1973 32ft Rival the initial team members set sail from Mallaig on 28 May and negotiated gale force winds up to force nine, arriving in Nuuk on 13 June. After repairing the vessel and resting in Nuuk they set out for Storo Island and made their first ascent up a 250m route they graded HVS 5a. From here they continued to Manitsoq where they made further ascents including an aborted attempt on a route on the Shark's Fin Wall. Henry joined the team in Sisimuit and they continued to Uummannaq, stopping at Disko Fjord on the way and finally Ukalilik Island where they made an ascent of *Arctic Heat Stroke*, an E4 line on the island's southern spit. They attempted a further route on Uummannaq Peak but retreated and moved on to Drygalskis Halvo for further exploring but the weather turned which prevented any climbing. On their return they stopped again in the Uummannaq area where they made a repeat ascent of Ben Ditto and Olivier Favresse's route *Married Mens' Way* (E3) and another line in Drygalskis' south-west bay. After returning to Mantisog for repairs to the boat, they continued on to Nuuk where they met a new crewmember, who accompanied them on their journey back to the UK. MEF ref 19-26.

**CryoCarbon Expedition** – Dr Emily Stevenson and Dr Mel Murphy

In the summer of 2019, Stevenson and Murphy undertook three weeks of fieldwork in the Zackenberg river catchment to determine the impact increased physical erosion has on carbon dioxide removal and release to the atmosphere. Glacial lake outburst flood (GLOF) stems from the A P Olsen glacier, flows downstream into the Zackenberg river and causes massive river bank erosion, vast sediment deposition and the delivery of up to 90% of the catchment's annual sediment budget in 32 hours. Unexpected injury on the expedition prevented the full planned research at the foot of the glacier, however the team were able to capture a GLOF event and take other water and sediment samples as planned. The work has so far generated over 500 data points which are still being analysed, however initial data shows that concentrations of sulphate in the water increased dramatically relative to alkalinity during the GLOF which was as the team hypothesised. Further

data on isotopic measurements taken and the impact this means for CO<sub>2</sub> release into the atmosphere is due to be analysed and published.

MEF ref 19-35.

## PAKISTAN

**Kondus Valley** – Graham Zimmerman, Chris Wright, Steven Swenson and Mark Richey

This international team from New Zealand, the UK and USA travelled to the Kondus valley with the objective of making the first ascent of the east face of Link Sar. The team opted to fly initially from Islamabad to Skardu before taking vehicles to their base camp in the Kaberi valley. From here they established a further advance base camp at the top of the valley's steep slopes. Conditions were favourable and the team began acclimatising. They began the route on 31 July, climbing the first section early in the morning to reach a camp at 5,100m and making further ground in the early evening. They continued throughout the night due to the temperature drop and made a bivy spot at 5,900m the next morning. From here they encountered a serious serac barrier that had not been present when the team were last in the area in 2017. They negotiated this round its right-hand side on good ice and found a higher bivy at 6,200m. After enduring a period of poor weather they made an attempt to continue in less favourable conditions but were forced to dig in to wait for further improvement. After the weather cleared they made good progress on the upper section of the route that gave way to challenging snow, ice and mixed climbing at the top. The final pitches gave difficult climbing on unconsolidated snow, which was negotiated to gain the summit at sunset. From here the team descended over three days and arrived back at advanced basecamp nine days after first heading out.

MEF ref 19-16.

**Sani Pakush Expedition** – Peter Thompson and Philip de-Beger

With prior experience climbing the north-east spur of Sani Pakush in 1998, Peter Thompson returned with Philip de-Beger to attempt a new alpine route on the north-east spur and east ridge in what would be a second ascent of the peak. Returning in July however, they found that the route contained far more seracs than last time and evidence of substantial avalanche fall. They nonetheless began acclimatising and began to carry equipment to the base of the route but found the glacier approach very difficult with no obvious routes around. They decided instead to switch to an alternative unclimbed 5,920m peak near the Khunjerab pass. They reached the bivy site without the aid of porters and reached a height of 5,800m but were forced to turn back after encountering a heavily corniced final ridge covered with poorly consolidated snow. With the expedition over, they arranged transport to collect them from the Karakoram Highway to return them to Karimabad.

MEF ref 19-28.

## SOUTH-EAST ASIA

### **Mulu Caves** – A Team of 20 Members

Following continued exploration of the Mulu Caves over many years, the primary aim for the Mulu 2019 expedition was further exploration of the system to connect a number of caves in the southern peninsula of Gunung Api. This focused on trying to join Cave of the Winds, Racer Cave, Easter Cave and Lagangs to significantly lengthen the Clearwater System. A sump from Cave of the Winds was proven to connect to Racer so all that remains is for a diver to pass through. Lagangs and Easter were not connected but significant extensions were found. Additional exploration was completed in the northern end of Clearwater towards the Blackrock connection. This has opened up interesting leads to be examined by future expeditions and alongside this exploration the team undertook further scientific work that examined microbiological features found in the cave. This work had originally aimed to examine four types of secondary deposits but also found unusual moonmilk deposits and an interaction between bird guano with host rock, which leads to highly aggressive dissolution. These early field observations suggest that there is a significant, but little understood microbial ecosystem within the caves, driven by temperatures, humidity and the uniquely high levels of troglodene organic carbon input into the system. MEF ref 19-42.

## EUROPE

### **Izvor Licanke Cave Diving** – Christine Grosart, Richard Walker, Rick Van Dijk, Ash Hiscock, Mark Burkey, Roberto Varesko, Rita Mallinson Cookson and Jessica Burkey

Successive expeditions have expanded the mapping for the Izvor Licanke cave network since the first expedition travelled to the cave in 1992. This expedition, which is in its fifth year of exploration of these caves, looked to build on this work by exploring new cave passages both above and below water. The expedition went to plan, with three exploratory dives conducted and 601m of new cave passages discovered. This brought the total length of the cave to 1.5km, of which 1,125m has been discovered by this 2019 team. Four sumps were explored in total, with new lengths found in each of them and evidence that the cave is still trending north and heading straight into the mountains north of the lake, appearing to pass beneath a mountainous, perched lake. Following this expedition, the team have been asked to gather water samples when they return in 2020 on behalf of the local water board.

MEF ref 19-40.

## INDIA

### **British Chombu Expedition** – Mick Fowler and Victor Saunders

The objective was the first ascent of Chombu (6362m) in north Sikkim. Despite closely controlled access to Sikkim, the two climbers obtained permis-

sion to make an attempt in April. Arriving on 1 April they made base camp by 6 April and spent a further 18 days scouting the route and acclimatising in poor weather before making an attempt. After two days resting, they moved up to the base of the route in heavy snow. Poor weather continued with heavy snowfall that refused to freeze. Each day a further fresh fall of snow would arrive and cover the unfrozen snow from the day before. With progress proving slow and a high risk of avalanche, they retreated and instead opted for a secondary objective on a peak they named Chungukang North. The weather continued in the same pattern but they were successful in ascending its south ridge. Following this they broke camp and walked out to Tangu on 26 April. They concluded, as have a number of other previous expeditions, that better conditions would be more likely after the monsoon season. MEF ref 19-01.

## NEPAL

**Himalchuli Glacier** – Anne Stefaniak, Benjamin Robson and Asha Rai

This scientifically focused expedition planned to test a number of theories on the formation of supraglacial ponds on the Himalchuli glacier. During September the expedition departed for Manaslu from Kathmandu, trekking up to the glacier on 4 September before spending six days collecting data. The three hypotheses they planned to test were: supraglacial ponds expand via deepening if area expansion is impeded; slope angles are less important than hydrological networks in supraglacial pond formation; and valley topography represents a key control on pond locations in combination with suitable conditions of down-wasting and stagnation. The expedition had originally planned to access the Himalchuli glacier on foot yet had to change to the Hinang glacier further north after they found their intended footpaths to the Himalchuli glacier overgrown. After completing their research they returned to Kathmandu on 14 September via the Manaslu circuit. MEF ref 19-02.

**British Rolwaling Expedition** – Ken Hopper, Simon Teitjen, Connor Holdsworth, Rich Lade and Will Rowland

During November 2019 this British expedition travelled to the Rolwaling where they established base camp on the Ripimoshar glacier. Their primary intention was a new route on Drangnag Ri. Following a heavy monsoon season the party found difficult snow conditions on the mountain and despite finding a route up the glacier and reaching the col between Drangnag Ri and Khang Kharpo they were forced to abandon their original plan after climbing to a high point of 6,100m. They switched instead to a smaller secondary objective: an unclimbed mountain (5981m) close to their base camp. Leaving at 3am they set out with the aim of first reaching the col. However the rock quality was found to be poor, and despite persevering a detached block caused Connor to fall and break his leg. Rescue was requested and they began lowering from the route, eventually meeting the rest of the party

who were coming up from base camp. The helicopter arrived the following day to take Connor to the Norvic Hospital and the rest of the team returned separately to Kathmandu. MEF ref 19-37.

**British Ardang Expedition** – Emily Ward and Mark Bielby

After waiting out a few days storm near their first planned objective on peaks south of Nying Khola, the team ultimately decided to move on rather than wait for more settled weather. They trekked over to Ardang (6034m) looking to make an attempt on the mountain's north face and north-east ridge. After setting their high camp at 4,650m, they twice tried to make an approach but both times were forced to turn back. The first time, after slow progress in waist-deep snow, they retreated but were able to drop equipment at 5,100m in preparation for their next attempt. This saw them make a further 300m on the route to where a rocky rib began ahead. However, here they found a number of layers of wind slab sandwiched between heavy powder on top of a 10cm layer of very faceted depth-hoar about 50cm down. Discovering this they were forced to turn back and trekked over to Nyalu La, getting in a couple of days ice climbing in Salli Khola before returning to Simikot.

MEF ref 19-38.

**British Kangchung Expedition** – Paul Ramsden and Jim Hall

The team had two objectives on the north faces of Kangchung Shar and Kangchung Nup, both of which have seen previous ascents from their south faces. Flying first from Kathmandu to Lukla, they then hiked up to Namche Bazaar and on to Gokyo, setting base camp at the foot of the Gyubanare glacier. After Jim began experiencing chest pains with a suspected pulmonary edema, they descended back to Gokyo and were recommended to drop back lower to Machhermo for Jim to recover. They then returned to base camp where they first attempted a direct line of ice on Kangchung Nup, but were only able to make 300m of height, after which the ice turned very thin. They changed instead to Kangchung Shar deciding to try the line first attempted by Simon Yates in 2016. After making a smooth ascent of the north face to Kangchung La they proceeded along the north-west ridge on soft snow to the upper rocky section below the summit. Here they found an impassable section of blank granite slab covered in powder snow, and with no way to bypass this they were forced to retreat. MEF ref 19-11.

**Lachama Khola Expedition** – Derek Buckle, Drew Cook, Lorna Earl, Mike Fletcher, Steve Humphries and Nick King

Between September and October, six Alpine Club members travelled to Lachama valley in the Changla Himal, trekking from Simikot. They made their first base camp at the confluence of the Lachama Khola's north and south branches and an advanced base camp south of the Lachama glacier. They approached what they believed to be their intended objective of 5822m but on closer inspection found that the photo they had been given was in actual fact a lower peak of 5590m. They decided to

switch to this new true objective and negotiated a difficult boulder field to take a closer look but decided ultimately that an attempt would likely take longer than the time they had. Instead they switched to their original lower objective and established a second camp close by. They made the pass at 5120m where they set their high camp but could not see a clear route up the west face and opted instead for a rocky outcrop on the ridge. However once on the ridge they found a steep snow-covered wall they were unable to pass and turned back 20m below the summit. Returning to base camp the weather began to indicate a change for the worse and they decided to return to Simikot. MEF ref 19-12.

**Glacial Drainage Systems on the Langtang Glacier** – Catriona Fyffe, Evan Miles, Marin Kneib, Simone Jola, Mike McCarthy, Alban Planchat and Reeju Shrestha

The team trekked initially from Syabrubesi to their Morimoto base camp over six days and set about undertaking their research. Their objectives were twofold: firstly to determine the structure and efficiency of the glacier's drainage system, and secondly to understand how the drainage system and resulting runoff is influenced by thickness and topography. Once at base camp they took discharge and water chemistry measurements and injected dye traces higher up in order to track the drainage systems that were then subsequently caught by the gauging station they installed. Over three days a total of eight dye gaugings were conducted and the data they gathered will allow the relationship between stream level and discharge to be understood, and ultimately give a more complete picture of the glacier's discharge. After 11 days in the field they trekked back out to Syabrubesi and onwards to Kathmandu. The team plans to return post-monsoon 2019 to complete further dye traces and take water chemistry samples.

MEF ref 19-24.

## TIBET

**Topographic Catchment Assessment** – Rebecca Stewart

The original objective of this expedition in the Bomi region of Tibet was to create a catchment wide topographic survey of Glacier 24K that could assess the sediment cascade through the system. Following an initial field campaign in June 2019, where initial scans were obtained of the catchment, the October expedition spent seven days surveying the glacier employing dye tracing, thickness measurements, time-lapse photography and scanning of the main headwall. The expedition also noted obvious visual changes between June and October including changes to the proglacial flow and movement of the stream. The final data analysis is continuing.

MEF ref 19-36.

## CENTRAL ASIA

**Pamir Ski Expedition** – Ryan Taylor, Elliot Smith, Peter Biskind and William Saunders

The objective of the expedition was to make a number of ski descents close to the village of Jilandi. After gaining permits locally, the team travelled by 4WD to Jilandi and arranged assistance to help take them further up the valley. They made their first camp on foot with the help of a number of locals, arriving on the 2nd May. From here they made four descents on Peak 4518, Peak 5150, Peak 5105 and Peak 5574. These culminated in a challenging final descent on Peak 5574 which saw the team climb for 8 hours and sit out a number of days of poor weather before skiing the planned line. During the expedition they noted a number of potential ski lines and climbing routes in the area, including a mixed line on Peak 5468 that they identified on the day of their second descent. MEF ref 19-05.

**Western Torugart Too Expedition** – Derek Billings, Robin Ohlssen, Dave Ryan, Rob Hughes-Games, Jenna Hughes-Games

Following information from Pat Littlejohn about unclimbed peaks in the Altai, Pamir and Tien Shan ranges, the team opted to look in more detail at the western area of the Torugart Too range. The area they chose had seen a number of expeditions in 2008 and 2010 but held a number of c4600m peaks still unclimbed. They made basecamp on the 28 August and acclimatised by ascending a number of smaller peaks close by. Once acclimatised they climbed four routes in very good weather and turned back on an additional fifth route at 4,300m after encountering unstable rock and climbers experiencing altitude sickness. Few issues were encountered aside from an impact to the head after one member paraglided during a descent that saw him treated for wounds to his nose and left eye. The team broke camp after heavy snowfall arrived and retreated to Naryn a day earlier than planned. They note that there is still additional potential for further first ascents in the area. MEF ref 19-09.

**KMC Western Zaalaisky Expedition** – Andy Stratford, Steve Graham, Emily Thompson, Andy Vine, Jared Kitchen and Stuart Hurworth

Six members of the Karabiner Mountaineering Club travelled to the little explored western Zaalaisky region with the aim to attempt unclimbed peaks and gain greater insight for future expeditions. After arriving in the Altyn Daria valley via the city of Osh the team established their base camp at 3,170m before the first ascent was made of Ak Chukur (4958m) from the Bel Uluu valley. The other valleys of Kaska Suu and Min Terke proved difficult to access due to dangerous river crossings, and instead further objectives were identified as Pik a Boo (5122m) and Broken Peak (5122m) which were ascended within two days of each other. The fourth peak was made a further two days later on Ak Kalpak (5112m) via a challenging route through crevassed terrain that saw Graham and Kitchen negotiate various sections

of steep ice. On the same day Stratford, Vine and Hurworth attempted a route up the north face of the glacier on 5084m but were slower than expected on the complicated glaciated terrain and were forced to turn back after running out of time. The team note the extensive potential still remaining in the area for unclimbed summits, particularly in the Min Terke group, but note that changing climate could cause further glacial retreat and instability which should be factored in. MEF ref 19-18.

**High-altitude Cryosphere Processes** – Dr Joel Fiddes, Dr Simon Allen and Mark Witcomb

This research project aimed to fill a vital knowledge gap concerning permafrost in high mountain environments, a topic of growing importance in light of climate change. The expedition was based in the Fann mountains near Iskanderkul in Tajikistan and set out to establish an elevation profile of ground temperature readings between 2000m and 5000m on Peak 4820m. Their aim was to establish a pilot project, which could serve as a reference for further expeditions planned in 2020 looking to establish a full metrological station in central Pamir. Alongside this data they noted areas of retreat and down-wasting on the glacier they were studying and a host of climbing potential. They encourage any future expeditions that come here to make contact with them to help gather more data from the region.

MEF ref 19-19.

**Sayan Mountains** – James English, Megan Picken, Harry Williams, David Warnes, Dr Alexander Shchetnikov and Dr Ivan Filinov

The expedition to the Sayan range in southern Siberia aimed to provide data to better understand past climatic conditions in the region using chironomids, diatoms and spheroidal carbonaceous particles, and also to extract two cores from four lakes in the range. After arriving at their designated field site from Khoito-Gol, the team set about sampling Lakes Kascadnoe and Khikushka over three days. They were unable to sample further lakes after the weather closed in and one team member fell ill. Conditions on the approach to another intended site, Lake Shas-Nur, meant circumnavigating large areas of bog that added five hours to the journey and with the daylight left there was not enough time to sample the lake. The data gathered from this expedition will be processed and studied at Newcastle University.

MEF ref 19-31.