

BORKOLDOY 2017

KYRGYZSTAN

MEF: 17-23

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The compiles of this report and members of the expedition agree that any or all of this report may be copied for the purposes of private research.

INTRODUCTION

Borkoldoy 2017 was the first major mountaineering expedition any of the team had taken part in. It was also many of the team's first expedition. Collectively we were excited and nervous – did we have the skills and experience to pull this off?

Overall we had a highly successful expedition, the team climbing 14 unrecorded peaks and scoping the entrances to several potential caves. We were also able to recce a couple of rivers for first kayak descents (and decide it wasn't worth it!) and gather data to contribution to established ornithologic and glacial scientific research projects.

Our main objectives were two peaks just over 5000m (Pik 5020.6 and Pik 5044.1), both situated south of our base camp at Kainar lake. The second of these we successfully summited on our 4th attempt but, despite a circumnavigation of the entire mountain, a line could not be identified for the first due to sustained technical difficulties on extremely loose rock.

Our base camp was idyllic, benefiting from lots of sun and perched on a large grassy ledge above a glacial lake that provided easy access to water for drinking and washing. As we were taking drinking water from the lake we used a settling tank, home-made filter and chlorine tablets to prevent illness.

Unfortunately, when we were dropped-off in the valley by our vehicular transport, the pack horses we had booked had not arrived. After waiting a couple of hours we were still alone, and so decided to start carrying the 500kg of food and kit we had into base camp by ourselves, and therefore ended up establishing base camp lower down the valley than we'd originally intended. As a result we lost some time in the first week recceing and attempting scary and loose rock routes rather than progressing to the head of the valley where objectively safer and more enjoyable climbing awaited.

We are most grateful to all those who helped make our adventure possible.



Acknowledgements

The expedition members would like to say a big thank you to The Mount Everest Foundation, the British Mountaineering Council and Wilderness Lectures for their generous financial support which made this expedition a possibility. We are also grateful to George Cave (www.67hours.co.uk) and Ray Talbot for their advice and support in the run-up to the expedition. Finally, thanks to Leanne Dyke for her daily weather forecasts, and for acting as our emergency contact back in the UK.



TEAM

Neil Cox (28)

Jack of all trades and master of none Neil has undertaken caving, kayaking, mountaineering and trekking expeditions all around the globe. Neil taught himself to mountaineer on Volcan Sajama in South America at 6542m, but harbours a general dislike of pure climbing and tries to avoid it where possible. With no idea of his technical climbing grade Neil mainly sticks to mountains and has completed c20 alpine routes in Chamonix and Saas Fee (up to D).

Stuart Gillan (29)

With an inability to follow simple instructions Stuart has left his profile open for others to write. Stuart has a fondness for snow stakes, peanut butter and big scree slopes, sometimes combining all three into one mammoth climbing day. Earning a reputation as the “big strong man” from the local hunters, Stuart impressed us all by carrying in a 25kg gas canister to base camp.

Tom Harding (31)

Climbed all around the UK and Europe on rock, ice, snow and turf. He can be often found in dilapidated quarries in the Mendips scaring himself on loose and vegetated climbs in the summer but every year heads north to the Scottish Highlands where he has climbed many of the easier classics. He has also completed several multi-day long distance treks in the Alps and Nepal, and always has a list of new projects in the planning.

Matt Lewis (32)

Enthusiastic mountaineer who has been searching for wild places through climbing, trekking, skiing and fellrunning all over the UK as well as further afield. Through being based on the edge of the Peak District he has ample opportunities to climb on gritstone, leading to HVS. Matt has also expanded his horizons to include Welsh sea cliffs, Scottish scrambling and winter routes, Norwegian ice. He has also run several trips to the Alps for ultrarunning, multi-pitch limestone routes, and alpine routes to AD.

David Lyons-Ewing (26)

With a trad climbing background and a developing interest in expedition medicine, David served as the team's medic and mountaineering punter. He has practised medicine in resource deprived areas including Malawi and Nepal and is currently based in New Zealand. He has a broad background in traditional rock climbing throughout Europe and America, including first ascents in his home country of Ireland. This trip was a "jump into the deep end" for him as he previously had limited snow and ice experience.

Scott Martin (29)

Mountaineering seriously for 6 years, climbing primarily in the Scottish Highlands with occasional trips to the Swiss and French Alps. Has scrambled along many iconic Scottish Ridges and climbed up to HVS, leading up to HS. Led routes up to Scottish Winter Grade II, climbed up to Grade IV. Bit of a dab hand in the kitchen, with or without the kitchen.

Hannah Meinertzhagen (25)

Rock climbing for 6 years and winter mountaineering for 4 years, dabble in ice climbing. First started climbing on the south Wales coastline in 2011, since then has climbed throughout the UK, in the French Alps and also on Table Mountain in South Africa, climbing up to HVS and leading up to S. Mainly mountaineered in Scotland and ice climbed up to grade III. Hannah loves climbing.

LOCATION



Kyrgyzstan is a small landlocked country in Central Asia. Home to just under 6 million people it was once part of the great Silk Road, a major trade route that played a fundamental part in the development of the country.

Gaining independence from the Soviet Union in 1981, it borders China, Kazakhstan, Uzbekistan and Tajikistan.

With over 90% of the country covered in mountains Kyrgyzstan has been a popular area for adventurous expeditions for many years. Our range, the Borkoldoy, lies in the south-east of the country and consists of two main valleys systems. Both systems are arranged in a horseshoe shape, one facing west and the other east. The western end of the Borkoldoy has been the subject of many prior expeditions but previous trips to the eastern side are clouded in tales of disappointment as teams were turned back by armed hunters. We were able to contact the local hunters in advance and agree a permit fee for access to this part of the range, becoming the first mountaineering team to enter the valley from its eastern entrance.



RESEARCH

Mountains

Due to time constraints our research was mainly restricted to online desktop research. We received confirmation that Vladimir Komissarov's guide, "Mountaineering Regions of Kyrgyzstan", listed all known climbed peaks, and therefore decided to assume that anything not listed was unclimbed. We cross referenced this guide against all the online trip reports we could find and found nothing to refute this theory. As such we were quickly able to confirm that area that had initially caught our eye, that is the eastern end of the Borkoldoy range, was mostly unclimbed and as such would be a suitable objective.

Links to the reports we found relating to other expeditions to the Borkoldoy Range are listed below:

- The International School of Mountaineering (ISM) carried out a number of expeditions to the Western Borkoldoy in 2003, 2004, 2005 & 2006 - full reports can be found on their site <https://www.alpin-ism.com/news/reports/>.
- The Harvard University Mountaineering club carried out a well-documented expedition to the northern Borkoldoy in 2005, the report and further information can be found on their website <http://www.harvardmountaineering.org/borkoldoy/>.

The above trips were also written up in the American Alpine Journal <http://publications.americanalpineclub.org/>. We only found documentation of a few further expeditions to either the northern or western areas of the range. The main AAJ publications of interest are:

- <http://publications.americanalpineclub.org/articles/12199532301/Asia-CIS-Borkoldoy-Region-of-the-Central-Tien-Shan-Kirghizstan>
- <http://publications.americanalpineclub.org/articles/12200730200/Asia-Kyrgyzstan-Borkoldoy-Range-Southwest-Borkoldoy-Piks-4608m-4778m-4661m-4705m-and-Damdjyegs-First-Ascents>
- <http://publications.americanalpineclub.org/articles/12200434700/Asia-Kyrgyzstan-Kokshaal-Too-Borkoldoy-Range-First-Ascents>
- <http://publications.americanalpineclub.org/articles/12200633700/Asia-Kyrgyzstan-Pamir-Alai-Borkoldoy-Range-Central-Borkoldoy-Pik-Tansovsitsa-North-Ridge-Alpinistka-West-Ridge-Pik-Koldunia-South-Ridge-Pik-Borkoldoy-South-Ridge>
- <http://publications.americanalpineclub.org/articles/12200633500/Asia-Kyrgyzstan-Pamir-Alai-Borkoldoy-Range-Northern-Borkoldoy-First-Ascents>

We also attempted to carry out research in to early ascents not recorded in western mountaineering publications. However, no firm reports could be found before the British 1995 expedition.

Weather

It was hard to find localised mountain weather information for Kyrgyzstan. Any information we did find was for different areas and so was unlikely to apply to our range. We took the decision to generally expect summer Alpine weather patterns, and estimated daily maximum and minimum temperatures by looking at data for Bishkek and then applying a dry air rate of cooling factor of 0.7 degrees per 100m altitude. Please see the 'Weather Monitoring' section for details of the actual weather we encountered.

Food

In our food research we found several horror stories on the internet. In reality we had no such problem with our food purchases. We used Couch Surfing to make advance contact with locals so as to benefit from their advice and guidance. We also hired an English-speaking shopping assistant for a day in Bishkek – this was probably the best €30 we spent during the expedition and ultimately removed the need for nearly all the food research we carried out!

Some key points, both from our research and personal experience, that are worth highlighting are:

- Ensure you buy pasta from a recognised brand rather than a local variety
- Many local soups are very salty so be careful
- Flour for flatbreads is morale boosting and supports high energy spreads like peanut butter and honey
- Squash'd is great for making glacial melt taste better (but you'll need to source from your home country)
- Pick-up plenty of herbs and spices to give variety

Please see www.neilcoxmisadventures.com for details of the food we took and calorie planning spreadsheets.

Advice for shopping in Bishkek can also be seen in the 'Bishkek Guide' section.

Transport & Logistics

We hired an in-country agent (Tien-Shan Travel) for our transport and other logistics. They presented a range of options and decisions were made based upon time and cost factors. As such no additional research was required. Tien-Shan Travel proved themselves to be a knowledgeable and reliable operator – we would recommend using them.



Costing

We compiled a summary of expedition costs (see below) from online trip reports for several other mountaineering expeditions to Kyrgyzstan. This provided an initial cost estimate to provide to potential team members. As planning progressed and the specific details of our expedition become more concrete this initial estimate was refined (but actually worked out being broadly correct in aggregate, budgets were just switched between categories). Please see the 'Expedition Accounts' section for details on our expedition's finances.

	Bristol Djangart 2013		Anglo-NZ 2013		Cambridge Uni 2012		???	Fergana 2013		Emily Ward 2013		
Team Size	6		6		8		???	5		5		
Days	???		???		???		???	29		29		
EXPENDITURE	Person	Team	Person	Team	Person	Team	Person	Team	Person	Team	Person	Team
Flights & Baggage	£454.17	£2,725.00	?	?	£628.13	£5,025.00	???	£1,732.00	£400.00	£2,000.00	£429.37	£2,146.86
Insurance	£311.00	£1,866.00	?	?	£235.00	£1,880.00	?	?	£120.00	£600.00	£283.61	£1,418.06
Gas & Base Equipment	£25.00	£150.00	£66.50	£399.00	£186.88	£1,495.00	Misc	Misc			Misc	Misc
Exped Food & Consumables	£85.00	£510.00	£298.67	£1,792.00	£100.63	£805.00	???	£669.00			£110.89	£554.45
Land Transport	£98.67	£592.00	£125.67	£754.00	£63.13	£505.00	???	Misc	£560.00	£2,800.00	Misc	Misc
Helicopter Transport	£292.83	£1,757.00	£362.67	£2,176.00	n/a	n/a	n/a	n/a			n/a	n/a
Visas & Border Permits	£12.50	£75.00	£12.67	£76.00	£61.88	£495.00	Misc	Misc			Misc	Misc
Vaccinations & Medical	?	?	?	?	£400.00	£3,200.00	?	?	?	?	£44.79	£223.97
Miscellaneous	£91.67	£550.00	£286.17	£1,717.00	£28.13	£225.00	???	£4,632.00	£64.00	£320.00	£569.70	£2,848.49
TOTAL	£1,370.83	£8,225.00	£1,152.33	£6,914.00	£1,703.75	£13,630.00	???	£7,033.00	£1,144.00	£5,720.00	£1,438.37	£7,191.83
GRANTS		Team		Team		Team		Team		Team		Team
MEF		£1,650.00		£1,650.00				£1,650.00				
BMC		£800.00							£650.00			£2,000.00
The Alpine Club		£800.00		£1,200.00				£400.00				
University of Bristol Alumni		£1,200.00										
MC of Scotland												£500.00
Meers-Grey Fund												£400.00
Tunnocks												£50.00
Austrian Alpine Club				£500.00								
TOTAL		£4,450.00		£3,350.00		£5,520.00		£2,050.00		£650.00		£2,950.00
PERSONAL COST	Person	Team	Person	Team	Person	Team	Person	Team	Person	Team	Person	Team
Duration of Expedition	£629.17	£3,775.00	£594.00	£3,564.00	£1,013.75	£8,110.00	???	£4,983.00	£1,014.00	£5,070.00	£848.37	£4,241.83
Per Day									£34.97	£174.83	£29.25	£146.27
Average Expedition Cost	£4,957.31											
Average Personal Cost	£813.86											
Average PPPN	£32.11											





EXPEDITION SUMMARY

Introduction

For the purpose of this report the mountain names given are just the heights as shown on the old Soviet military maps.

All altitudes and GPS locations were measured using Garmin InReach devices, and should be accurate to at worst +/-10m.

Slope gradients were measured using inclinometers built into compasses.

Approximate grades for the routes climbed were estimated using the following guidelines:

Grade	Description
F	<ul style="list-style-type: none"> • Easy snow or ice walking route • May include easy UIAA GI scrambling
PD	<ul style="list-style-type: none"> • Minor crevasse sections and limited objective danger • Routes may be longer and at altitude, possibly requiring belays and abseils • Snow or ice up to 35-45° • Rock moves to UIAA GII
AD	<ul style="list-style-type: none"> • Snow or ice up to 40-55° • Rocks moves to GIII but unlikely to be sustained at that difficulty
D	<ul style="list-style-type: none"> • Snow or ice up to 50-70° • Hundreds of metres of easier climbing or rock moves to GIV/V • Significant objective danger

Peaks Climbed

Overall 14 peaks were climbed by the team, consisting of a mix of technical climbing peaks and easier ‘scree bashes’. We have enquired to a number of organisations (Lindsay Griffin, American Alpine Journal Kyrgyz Alpine Club, The Alpine Club and The Russian Mountaineering Federation) and, so far as we are aware, there are no prior recorded ascents on any of these peaks.

ID	Name	Location	Altitude	Route Length ¹	Grade	Climbers	Date
1a	Pik 4557.5	41.431513°N, 77.898366°E	4576m	850m	PD-	Stuart Gillan, Tom Harding	11-Aug-17
1b					D-	Neil Cox, David Lyons-Ewing	11-Aug-17
2	Pik 4375.2	41.379693°N, 77.910640°E	4418m	980m	PD-	Matt Lewis, Scott Martin, Hannah Meinertzhagen	12-Aug-17
3	Unmarked	41.368503°N, 77.861738°E	4701m	450m	D-	Neil Cox, David Lyons-Ewing	13-Aug-17
4	Unmarked	41.370145°N, 77.822965	4666m	470m	AD+	Neil Cox, Stuart Gillan	17-Aug-17
5	Pik 4724.9	41.370145°N, 77.822965°E	4723m	80m ²	PD	Neil Cox, Stuart Gillan	17-Aug-17
6	Pik 4632.8	41.357120°N, 77.796635°E	4625m	850m	PD-	David Lyons-Ewing, Hannah Meinertzhagen	17-Aug-17
7	Pik 4785.4	41.349781°N, 77.812428°E	4785m	1010m	PD-	Matt Lewis, Scott Martin	17-Aug-17
8	Pik 4444.6	41.396001°N, 77.790070°E	4465m	690m	F	Neil Cox	18-Aug-17
9	Pik 4722.3	41.353000°N, 77.795000°E	4727m	950m	PD-	Neil Cox, Tom Harding, Hannah Meinertzhagen	19-Aug-17
10	Pik 4966.2	41.376700°N, 77.821011°E	4963m	1190m	PD-	Stuart Gillan, Matt Lewis	22-Aug-17
11	Pik 4668.9	41.341445°N, 77.805133°E	4678m	900m	PD-	Stuart Gillan, Matt Lewis	23-Aug-17
12	Pik 5044.1	41.361530°N, 77.843906°E	5042m	390m	PD	Neil Cox, Tom Harding, David Lyons-Ewing, Scott Martin, Hannah Meinertzhagen	24-Aug-17
13	Pik 4513.8	41.428735°N, 77.875643°E	4520m	1040m	F	Stuart Gillan, Scott Martin	26-Aug-17
14	Pik 4636.1	41.433263°N, 77.914266°E	4640m	1160m	F	Stuart Gillan	27-Aug-17

1. This is estimated from the camp used (or later low point) for the route. However, for many routes much of this length would be along easy angled glaciers, scree slopes or valleys floors.

2. This is calculated from the low point between the peaks listed in ID5 & ID6.

Additionally we retreated from attempts on the following peaks:

ID	Name	Grade	Climbers	Date	Reason for Retreat
A	Pik 5020.6	D-	Neil Cox, David Lyons-Ewing	13-Aug-17	Ridge long and rock quality very poor. Summited peak in ID3 instead.
B	Pik 5044.1 ¹	PD	Stuart Gillan, Tom Harding	15-Aug-17	Lack of acclimatisation and rockfall.
C	Pik 5044.1 ¹	AD+	Neil Cox, Stuart Gillan	17-Aug-17	Moving too slowly and easier route identified from a different approach. Summited peaks in ID4 and ID5 instead.
D	Pik 5044.1 ¹	PD-	Neil Cox, Tom Harding, Hannah Meinertzhagen	21-Aug-17	Exhaustion (leading to altitude sickness symptoms) and suspected hypothermia onset.
E	Pik 4898.7	AD	Neil Cox, Tom Harding	26-Aug-17	Exhaustion and delicate snow bridges at bergschrund.

1. Eventually climbed in ID12



Borkoldoy Expedition

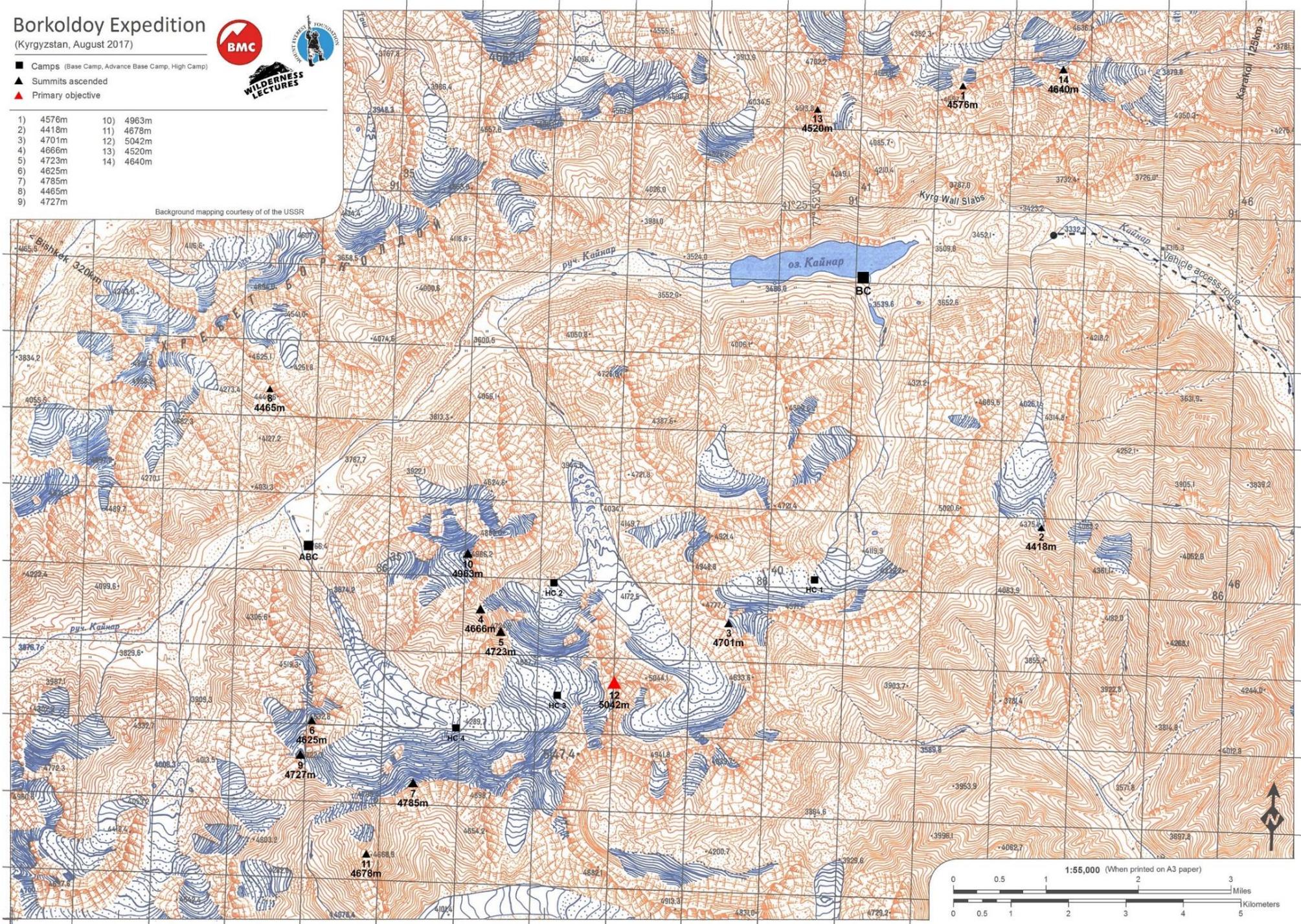
(Kyrgyzstan, August 2017)



- Camps (Base Camp, Advance Base Camp, High Camp)
- ▲ Summits ascended
- ▲ Primary objective

- | | |
|----------|-----------|
| 1) 4576m | 10) 4963m |
| 2) 4418m | 11) 4678m |
| 3) 4701m | 12) 5042m |
| 4) 4666m | 13) 4520m |
| 5) 4723m | 14) 4640m |
| 6) 4625m | |
| 7) 4785m | |
| 8) 4465m | |
| 9) 4727m | |

Background mapping courtesy of the USSR



Day-by-Day Summary

Date	Activities
Sat 5 th Aug	Fly London to Bishkek.
Sun 6 th Aug	Shopping and sorting logistics in Bishkek.
Mon 7 th Aug	Shopping and sorting logistics in Bishkek.
Tue 8 th Aug	Travel to Issyk-Kul lake by minibus.
Wed 9 th Aug	Travel to main valley by GAZ-66 and walk in to base camp.
Thu 10 th	<ul style="list-style-type: none"> All set up base-camp. NC & SG recce Scree Valley.
Fri 11 th Aug	<ul style="list-style-type: none"> NC & DLE climb Pik 4557.5 via slab cave route (4576m, 850m, D- Severe 4a). Both return to base camp. SG & TH climb Pik 4557.5 via direct slab route (4576m, 850m, PD-). Both return to base camp. ML, SM & HM rest at base camp.
Sat 12 th Aug	<ul style="list-style-type: none"> ML, SM & HM climb Pik 4375.2 (4418m, 980m, PD-). All return to base camp. NC & DLE set-up high camp 1. SG & TH rest at base camp.
Sun 13 th Aug	<ul style="list-style-type: none"> NC & DLE climb an unmarked peak (4701m, 450m, D-) and complete low-level recce circumnavigation of one of the expedition's two primary objectives (Pik 5020.6). Determine it as unclimbable in the current conditions due to sustained difficulties on loose rock. Both return to base camp. SG & TH recce glacier south and 3km west of Kainar Lake. ML, SM & HM rest at base camp.
Mon 14 th Aug	<ul style="list-style-type: none"> SG & TM set-up high camp 2. ML & SM recce glacier 5km south and west of Kainar Lake. NC & HM move to high camp 1 for acclimatisation. DLE rests at base camp.
Tue 15 th Aug	<ul style="list-style-type: none"> SG & TH attempt the second of the expedition's two primary objectives (Pik 5044.1) via the west ridge. Retreat due to lack-of acclimatisation and rock fall. NC & HM remove high camp 1 and return to base camp. ML, SM & DLE rest at base camp.
Wed 16 th Aug	<ul style="list-style-type: none"> DLE, ML, SM & HM set up advanced base camp 1. NC moves to high camp 2. TH returns to base camp. SG rests at high camp 2.
Thuy 17 th Aug	<ul style="list-style-type: none"> NC & SG climb an unmarked peak (4666m, 470m, AD+) and Pik 4724.9 (4723m, 80m, PD). Decide not to carry on towards expedition's second primary objective (Pik 5044.1) as have moved too slowly. NC moves high camp 2 to advance base camp, SG returns to base camp. DLE & HM climb Pik 4632.8 (4625m, 850m, PD-). Both return to advance base camp. ML & SM climb Pik 4785.4 (4785m, 1010m, PD-). Both return to advance base camp. TH rests at base camp.
Fri 18 th Aug	<ul style="list-style-type: none"> NC climbs Pik 4444.6 (4465m, 690m, F). ML recce valley head and returns to base camp. TH moves to advance base camp. DLE & SM return to base camp.

	<ul style="list-style-type: none"> • HM rests at advance base camp. • SG rests at base camp.
Sat 19 th Aug	<ul style="list-style-type: none"> • NC, TH & HM climb Pik 4472.3 (4727m, 950m, PD-). All return to advance base camp. • DLE, SG, ML & SM rest at base camp.
Sun 20 th Aug	<ul style="list-style-type: none"> • NC, TH & HM set up high camp 3. • DLE, SG, ML & SM rest at base camp.
Mon 21 st Aug	<ul style="list-style-type: none"> • NC, TH & HM attempt Pik 5044.1. Retreat due to exhaustion & hypothermia. All return to base camp. • SG & ML move to advance base camp. • DLE & SM recce a small glacier access by the valley just south-west of Kainar Lake.
Tues 22 nd Aug	<ul style="list-style-type: none"> • SG & ML climb Pik 4966.2 (4966m, 1190m, PD-). Both return to advance base camp. • DLE & SM move to advance base camp. • NC, TH & HM rest at base camp.
Wed 23 rd Aug	<ul style="list-style-type: none"> • SG & ML climb Pik 4668.9 (4678m, 900m, PD-). Both return to advance base camp. • NC, TH & HM move to high camp 3 (from base camp). • DLE & SM move to high camp 3 (from advance base camp).
Thu 24 th Aug	<ul style="list-style-type: none"> • NC, DLE, TH, SM, HM climb the expedition's secondary primary objective, Pik 5044.1 (5042m, 390m, PD). NC & TH return to advance base camp. DLE, SM & HM return to base camp. • SG & ML return to base camp.
Fri 25 th Aug	<ul style="list-style-type: none"> • NC & TH set-up high camp 4. • DLE, SG, ML, SM & HM rest at base camp.
Sat 26 th Aug	<ul style="list-style-type: none"> • SG & SM climb Pik 4513.8 (4520m, 1040m, F). Both return to base camp. • NC & TH attempt Pik 4898.7. Retreat due to fatigue and delicate bergschrund. Both return to advance base camp. • DLE, ML & HM rest at base camp.
Sun 27 th Aug	<ul style="list-style-type: none"> • SG climbs Pik 4636.1 (4640m, 1160m, F). Returns to base camp. • NC & TH remove advance camp 1 and return to base camp. Recce rivers and cave entrances on way. • DLE, ML, SM & HM rest at base camp.
Mon 28 th Aug	<ul style="list-style-type: none"> • All break-down base camp. • NC recce of cave entrances.
Tue 29 th Aug	Walk out from base camp and travel to Issyk-Kul lake by GAZ-66.
Wed 30 th Aug	Travel to Bishkek by minibus.
Thu 31 st Aug	R&R day in Bishkek.
Fri 1 st Sep	R&R day in Bishkek.
Sat 2 nd Sep	Fly Bishkek to London.

A big thank you goes to Hannah Meinertzhagen who, when not hibernating herself, helped us achieve our science objectives by spending much of her time at base camp hiding in bushes photographing birds.

Injuries and Near Misses

Thankfully other than small issues such as blisters, stomach upsets and minor altitude problems, there were no injuries or health issues on the expedition. It is suspected we had one case of hypothermia on a summit push, but the individual was treated at high camp by their climbing partners without the need for further assistance.

We had two near misses during the expedition. The first was when the rope snagged a very large and loose boulder near the top of a steep ice route. It was pulled free and bounced down the route whistling directly over the top of the second's head. The near miss arose from significant rockfall directly across the intended route just minutes after a climbing pair turned back due to concerns over rock and snow stability.



LOGISTICS

Transport and Permits

Our agent, Tien Shan Travel, handled all in-country access logistics for us. We travelled to Lake Issyk-Kul by minibus and then transferred to a GAZ-66 off-road military truck. We did this journey over two days, but it would be possible to achieve the whole journey in one very long day. The GAZ-66 was expensive, being €800 one way for 240km compared to €180 one way for 340km for the minibus. It is our opinion that a much cheaper expedition could be achieved by using a 'normal' 4x4 instead and then walking in at most 20km using pack horse support over 1 or 2 days.

Borkoldoy is in the border area and a special permit is required. Additionally the eastern end of the Borkoldoy range is accessed through private hunting grounds. Previous expeditions have been turned back by these hunters, but we made contact in advance and agreed to pay a 'permit' fee of €1000 to gain access.

In 2017 no visa was required for British nationals visiting Kyrgyzstan, nor for British nationals transiting through Russia, so long as the period of that transit is less than 12 hours.

First Aid

David Lyons-Ewing acted as our expedition doctor and was responsible for putting together first aid kits.

Due to the remote location it was agreed that climbing teams would carry comprehensive first aid kits. These were purchased/made-up specifically for the expedition and so were consistent across all teams. A larger first aid kit was kept at base camp – this was designed for restocking the climbing team first aid kits and for dealing with more serious injuries.

We also had a 'grab bag' stored at base camp in case of a serious accident. As well as containing items like warm kit and food, this also included a small trauma kit.

Vaccinations

As at June 2017 the only vaccine normally advised for Kyrgyzstan is for tetanus. All team members already had this as part of the NHS childhood vaccine programme and therefore no action was needed. Travelers are also recommended to consider hepatitis A, hepatitis B, rabies and typhoid vaccines. Given our altitude and remoteness no team members decided to take any new vaccines, although we noted rabies as a particular risk in this regard (and given there was a wolf pack operating near our base camp maybe this was a mistake!).

Again, as a June 2017 malaria risk was considered low in Kyrgyzstan, and so no anti-malarial medication was used.



Camps

Base Camp

Our main base camp was set up on a beautiful grassy alpine meadow 3513m on the banks of Kainar Lake at [41.408889°N, 77.882778°E](#). The pack horse support for our walk-in had arrived very late and as a result we'd hadn't managed to establish our base camp quite as far up the valley as we'd originally intended. However, we were remarkably lucky with our location. Local boulders provided great cragging opportunities on rest days, bird song filled the sky around us and crystal-clear reflections of the mountains could be seen in the lake every morning.

Using a settling tank and home-made filter system the lake provided adequate water for drinking, and was also very handy for washing. Cleaner drinking water could be found about a 10-minute walk uphill towards the nearest valley if desired.

Advance Base Camp

About halfway through the trip we set-up an advanced base camp several kilometres up the valley. This involved carrying up supplies and establishing a semi-permanent camp.

Advance base camp suffered from less sunlight than base camp and so was significantly colder, but benefited from being much closer to one of our primary objectives and other attractive routes. There was also a small clear stream a couple of minutes away that provided a much appreciated respite from our silty base camp water!

Advance base camp was at 3770m at [41.3777177°N, 77.7958633°E](#).

High Camps

The following high camps were set-up for single nights only to support summit pushes. Drinking water for these was obtained from glacial streams, or from melting snow or ice. The high camps were:

High Camp	GPS Location	Altitude	Approach Time	Description
1	41.373546°N, 77.875171°E	4208m	2hrs from base camp	Climb the grassy hill above base camp into the side valley. Traverse the left-hand side of the lake, gradually climbing to a scree plateau. Where possible follow the river bed from here, taking animal tracks on the left bank for sections where this is not possible (note the river sumps underground in several places but the river bed should be obvious). After just over 1hr a climb over large boulders leads to the bottom of a large scree mountain. Mini valleys branch left and right with both eventually leading to ABC – left is probably longer but physically less demanding. ABC can be set up on the glacier, taking care to avoid the (many) stone fall areas. Drinking water is available on the right-hand side of the glacier.
2	41.373191°N, 77.834423°E	4196m	2.5hrs from base cam	From base camp head west along Kainar Valley until the end of the stony fluvial plain. Cross the river emanating from the side valley and entering it keeping the river on your left-hand side. After crossing a rocky alpine meadow keep right following a gully bounded by the impressive cliffs on the right and the even more impressive scree ‘mountains’ on the left. This rightward trending route is followed for around 1 hour until the glaciers come into view, finally ending with huge piles of moraine in a large icy cirque. The camp is situated on a flat section clear of the frequent rockfall and risk of serac fall. Water can be found 30m away from a small stream.
3	41.360278°N, 77.836389°E	4654m	2.5hrs from advance base camp	From advance base camp walk up the side valley following animal tracks over unusually stable scree. Move to the smooth glacier as soon as possible trending right towards the obvious break where the glacier steepens. Roping up continue to the ‘flat’ section beneath the saddle leading to the two 5000m+ mountains. Camp can be establishing by digging a ledge between two crevasses clear of the serac fall line from the slope above. Snow will need to be melted for water.
4	41.3580132°N, 77.8152879°E	4247m	1hr from advance base camp	As for high camp 3 but stop on the thin glacier after approximately an hour. Take care to establish camp away from the objective dangers. Water can be found from several small streams on the glacier.

Insurance

All of the team became members of the Austrian Alpine Club as part of this expedition and so decided to use their insurance. Although their basic insurance provides low cover limits (€25,000 SAR and €10,000 for medical treatment) there is cover for repatriation services without limit subjects to certain conditions being satisfied:

“The prerequisites for repatriation of an insured party, in addition to such party’s ability to be transported, are: a) the existence of a life-threatening disturbance to the insured party’s state of health or b) the locally available medical care does not ensure treatment of a standard corresponding to that available in the party’s country of permanent residence c) an in-patient hospital stay of more than five days is expected.”

When combined with our £10,000 of emergency money the €25,000 SAR limit seemed reasonable as the location of all team members should have always be known as each team were carrying InReach devices with tracking switched on. €10,000 did not provide much cover for medical treatment but after research we were of the belief that condition b) above would bite and any injured or ill party would be eligible for repatriation to the UK should their condition permit it (and if their condition didn’t permit it then it is unlikely they would have survived a rescue operation anyway to the timeframes involved).



EQUIPMENT

Full details of the equipment taken can be found at www.neilcoxmisadventures.com.

Climbing

Two 60m half ropes, a single triple rated 60m rope and a single 30m half rope were taken. The team also carried in 90m of 6mm cord to use as pull-down cord and therefore allow for full length abseils on the 30m half rope and 60m triple rated rope. During the expedition we occasionally found 'arguing' over who got which ropes and in retrospect it would have been beneficial to take another pair of halves.

Between the team we could just about pull together two racks of ice screws. With the rock very loose many of the routes we climbed contained steep ice and more ice screws would have been reassuring.

Generally the best rock protection we found was slings around (loose!) boulders and as a result our rock gear (approximately 9 cams, 3 sets of nuts and a few hexes) didn't see much use. Similarly our snow stakes and deadmans went unused.

Tents/Shelter

Due to the short walk-in we'd elected for a fairly luxurious expedition, carrying in a large base camp tent (rented in country), chairs and a two-burner camping hob. The tent held up well despite taking a battering from strong winds on a couple of nights.

As a team we'd also taken 4 smaller mountain tents, for use at base camp or moving to advance or high camps. We'd taken a range of different qualities/styles of mountain tents, ranging from light weight 1kg one to a full-on all-conditions Hilleberg Nallo. The rationale for having the smaller and lighter tents was that they would be easier to carry for setting up high camps, and potentially for use on longer routes. However, all our routes ended up being one day and we found that we generally preferred to carry up the larger, heavier tents to high camps than squeeze into the light ones.





Food

Apart from some freeze-dried meals and vegetable packs, all food was purchased in Bishkek. With a translator we were able to find pretty much everything we needed without much difficulty. Menus were put together in advance, aiming to hit certain calories (3000kcal per person per day) and weight (850g per person per day) targets. We loosely operated a three-day rotating menu:

	Food Items			Calories (kcal) & Weight (g)		
	Menu 1	Menu 2	Menu 3	Menu 1	Menu 2	Menu 3
Snacks	Peanuts, cereal bars and chocolate bars	Chocolate biscuits and dried fruit	Cookies, sweets and cereal bars	1,281	433	967
Breakfast	Porridge with water, sugar, raisins and milk powder	Granola with warm milk powder	Porridge sachets with raisins	841	967	360
Lunch	Soup with noodles/lentils & chorizo	Nuts and cereal bars	Flatbreads and spreads	305	663	1,428
Dinner	Spicy ham, dried vegetables, soup and rice	Chorizo, spaghetti + tomato sauce	Spicy ham with couscous and soups	350	434	243
Dessert	Pancakes with honey	Milk chocolate	Flatbreads and spreads	223	546	Included in lunch
				3000kcal	3043kcal	2998kcal
				930g	770g	940g

We carried in 7 lots of each of these menus, plus 48 freeze-dried meals and a small amount of freeze dried vegetables. The intention is that this would cover us for 19 climbing days plus 3 travels day where we weren't sure if we would have access to food. In the end finding food was not a problem on the transport days, and even ignoring this we ended up carrying a lot of food out.

Cooking

As well as hiring a two-burner hob and 25kg gas tank in Bishkek we also took in four personal stoves (Jetboils and MSR Pocket Rockets) and ten 430g gas canisters. The small gas canisters were calculated so as to be sufficient for 50% of the cooking we expected to do (to allow for both advanced and hire camps, and for redundancy in case of failure of the hob). In reality we had far too much gas, both in terms of the 25kg tank and smaller canisters.

For the two-burner hob we rented pots and pans from Tien Shan travel. However these were heavy and probably more expensive than purchasing cheap equivalents from a Bishkek market.

Power

One 20W Anker solar panel and two 15W Anker panels were taken. One of the 15W panels was broken and charging poorly but we still found that we had more than enough power for our needs (MP3 players, e-cigarettes, cameras, InReach devices, GPS watches, base camp lights and an iPad that we used for writing notes and watching the occasional film). The e-cigarette was one of the larger drains on our power; without this and with careful management we could have probably got by with just the 20W panel. A key point here is that mobile phones and GPS devices, both high drain items, were switched off for the duration of the expedition (we only took one GPS device which was in the rescue box and not needed).

Lighting

We purchased three 'Prodeli' solar powered light bulbs from Amazon for the expedition. These were hung-up in the main base camp tent and used at night for cooking and reading. They were very light (essentially a normal light bulb and phone battery) and on a full charge supplied more than enough lighting for our large base camp tent for at least 6 hours of use. The supplied solar panels were ineffective, but we charged the lights from our main panels without a problem.

150 AAA batteries were also taken for personal headtorches. Only very occasionally did teams start climbing in the dark and so this proved far too many (i.e. we had easily over 100 remaining at the end of the expedition).

Communication

Each climbing team and base camp carried a walkie-talkie and Garmin InReach. The Garmin InReach devices proved very useful for contact between teams and for getting external updates (e.g. weather from the UK or messages from our agent). We were also able to use them to post live updates to our Facebook page. The InReach devices formed a key part of our daily check-in and call out process. They are much faster to use when paired with a smart phone, but we elected not to do this due to the (significantly) increased power requirements. Effective use of the three pre-set messages can prevent most of the need for slow custom messages.

Two of the InReach devices were owned by the team and the other two were rented from the Alpine Club. The two rented from the Alpine Club has been used by our expedition leader before and we seemed to incur a bug whereby we couldn't set up the contacts properly for the 3 automated messages (essentially the rented ones were 'remembering' a previous contact and so not letting the new one, which had the same contact number, be added – however there was no way of selecting the old contact). There was a manual workaround for this, but Garmin customer services were very unhelpful and reliable in providing support.

The walkie-talkies were not of much use. They were most helpful for asking base camp to get food on when climbing parties were on their way back, or contacting advance base camps to request assistance for load carries. We achieved several kilometres of range when line of sight was achievable, however the terrain often prevented this.

We did not take a satellite phone with us, electing instead to use the InReach devices in case of an emergency. With text only capability on the InReach devices, it is difficult to know how effective this would have been in a rescue situation.

BASE CAMP LIFE

Facilities

We set up a number of systems to make our time at base camp easier and more enjoyable.



Water was collected from the lake in a in a large settling tank before being filtered and transferred to 10l water bottles.



The camp kitchen



Call-out and notice board



Our fridge



A 3 bowl system (rinse, soap, iodine) was used for washing-up with a small hammock installed to act as a drying rack



Local Cragging

ChossFacts—Kainar Valley

Matterhorn Bloc

The Matterhorn Bloc has the distinction of being one of the only consolidated pieces of rock in the valley, and as a result, this offers up a number of routes.; though is still not without its loose and friable sections.

Care should still be taken as while mostly solid, holds on all routes detailed in this guide have been known to come off under varying degrees of pressure, and there is a worryingly loose block on the right hand end of the bloc itself; none of the routes described go near this, and the creaky chockstone on *Toblerone Crack* has been thoroughly checked and currently seems solid. In-situ protection is limited on most routes, though it is possible to set up pretty convincing top-ropes by slinging the more stable boulders above.

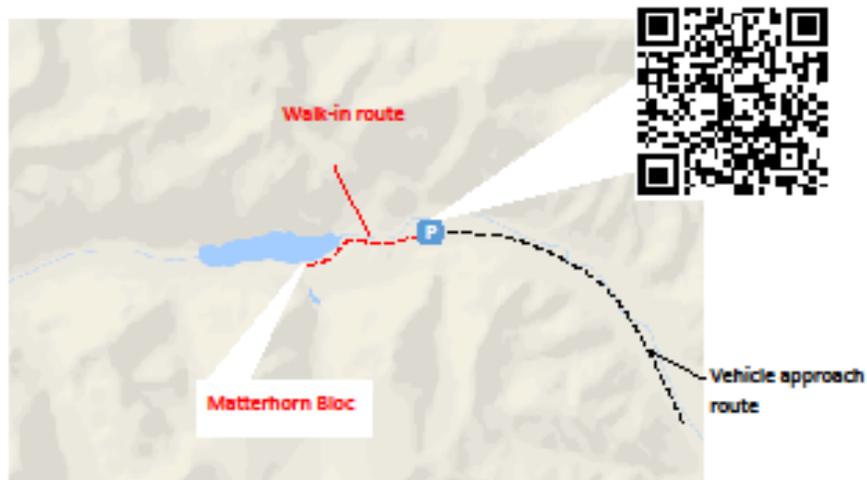
Despite being north-facing the rock dries quickly, although a layer of white lichen on most holds maintains interest, and most routes would benefit from a thorough cleaning.

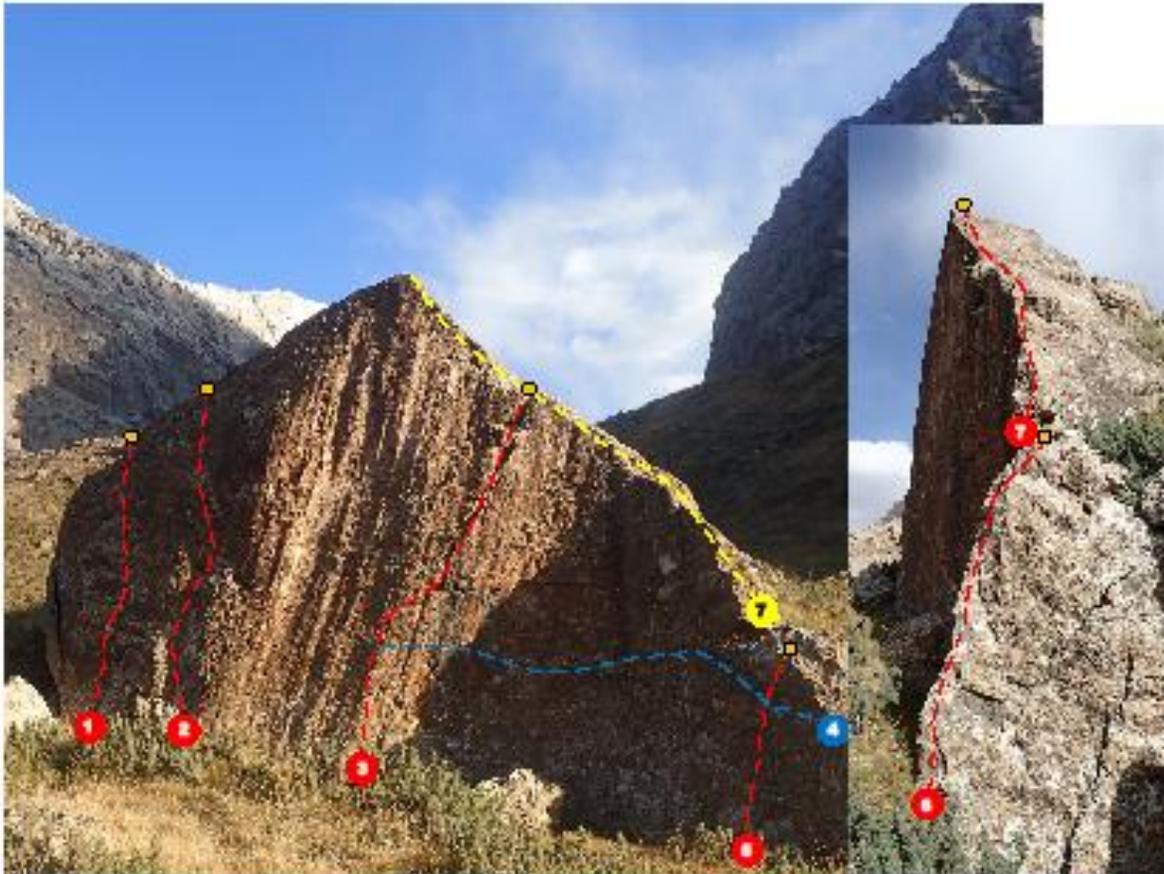
Approach

From Bishkek take the A365 then the A363 to reach Barskoon Gorge. Transfer to heavy duty truck and take the A364 past Kara-Say until it's possible to take a mountain pass (vague track) into Kainar Valley. Head up the valley to reach a large gorge emerging from the South side of the valley and a small hunters cabin. Leave the truck here and continue along moraine to reach Kainar Lake; take ibex trails on South side of Kainar lake to Matterhorn Bloc (~1.5hrs)

Access

The whole of Kainar Valley belongs to a group of hunters, and permission needs to be gained from them to allow access. Permits should be arranged through the local agent prior to arrival. The other inhabitants of Kainar Valley are chiefly wolves and ibex, however there have been no reported access issues from either of these so far.





- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Maiden Mono, 6m.....VDiff</p> <p>A simple start leads to a surprisingly blank section at mid-height solved through a mono (yes, on a VDiff!) before finishing with ease.</p> <p><i>FA Scott Martin 2017</i></p> | <p>4 Lichentrophy, 8m.....★ 5b</p> <p>From the end of the block traverse across to the starting jug on Toblerone Crack without using the horizontal break using a mix of unhelpfully oriented slopers and dusty, crystalline pockets.</p> <p><i>FA Matt Lewis 2017</i></p> |
| <p>2 Carmex, 8m.....★ 5c</p> <p>After gaining the horizontal break make the committing rockover to a desperate crimp on a sloper before better holds appear. Easier for the tall.</p> <p><i>FA David Lyons-Ewing 2017</i></p> | <p>5 Holdbreaker, 4m.....f3</p> <p>Work up toward the right hand arete of the bloc, preferably without breaking off any more of the rock than possible.</p> <p><i>FA Matt Lewis, Scott Martin 2017</i></p> |
| <p>3 Toblerone Crack, 8m.....★★ HVS 5a</p> <p>From an initial jug, gain the horizontal break then swing up the slanting crack to the creaking chockstone. Also goes as Trash Torque (M4) with some good torque and steirpull placements.</p> <p><i>FA Matt Lewis 2017 FA (Trash Torque) Stuart Gillan, Matt Lewis</i></p> | <p>6 Matterhorn Arêtef4</p> <p>Stay on the right hand side of the arete to reach the ledge at the bottom of Matterhorn ridge.</p> <p><i>FA Matt Lewis 2017</i></p> |
| | <p>7 Matterhorn Ridge, 8m.....★ Mod</p> <p>A pleasant (if exposed) scramble to the top of the bloc. Not overly well endowed with protection.</p> <p><i>FA Matt Lewis, Scott Martin 2017</i></p> |

ETHICS AND THE ENVIRONMENT

At base camp all human waste was buried in a single deep trench. Toilet paper was burnt and the ashes buried. At other times human waste was buried and the toilet paper burnt, or carried out to base camp to be burnt there.

Food waste was also buried.

All packaging was carried out. We intended to recycle this in Bishkek but hadn't realised there are no domestic recycling facilities available in Kyrgyzstan. We carried a small amount of this rubbish (as much as we could within our weight allowance) back to the UK for recycling.

We also came across various items of rubbish such as rusty tin cans in the main Kainar Valley. We assume this was left behind by hunters and carried out anything we found.

All washing was done with eco-friendly 'biodegradable' soaps. A small amount of iodine was also used for sterilising washing-up water and this was poured into a bush each day.

No pitons or bolts were taken.



EXPEDITION ACCOUNTS

We are grateful for the grants received from the Mount Everest Foundation, British Mountaineering Council and Wilderness Lectures. We did not operate a 'budget' trip and the cost of this trip could be significantly reduced if required (e.g. we purchased new ropes for the expedition and rented a base camp tent and stove).

It should be noted that the accounts below also include expenditure on food, drink (including some alcohol) and accommodation during the 5 nights we spent in Bishkek, as well as a hotel near Heathrow the night before the flight. Therefore the cost below reflects the true 'fully inclusive' price of our expedition.

Category	Income	Expenditure
Flights and additional baggage		£3,795
In-country transport (including airport transfers and pack horses)		£1,847
Expedition food		£911
Hotel accommodation		£627
Medical supplies		£342
Visas and border permits		£1,050
Equipment		£3,536
Insurance		£388
Misc		£676
Total Expenditure		£13,171
MEF Grant	£1,650	
BMC Grant	£500	
Wilderness Lectures Grant	£650	
Total Grant Contributions	£2,800	
Personal Contributions (per person)¹	£1,297	
Personal Contributions (Total)	£10,371	
Total Income	£1,371	

1. There were originally 8 members of our team but one person dropped out at short notice due to illness. They contributed fully to the expedition (except for an allowance for items such as food where we were able to reduce expenditure).

BISHKEK GUIDE

We had two days (one and a half really after arriving from the flight at 5am) in Bishkek to make the final preparations for the expedition. This included getting supplies, arranging transport with our agency and contacting the local mountain rescue agencies. Our agency collected us from the airport and deposited us gratefully at our apartment. The capital itself is fairly undeveloped in many places but clearly improving with construction projects evident. Temperature was 20°C at 5 in the morning, but this quickly pushed up to a sticky 35°C by the middle of the afternoon. Shorts, t-shirt and light footwear definitely advised. Trekking trousers and B3s definitely best avoided in town.

We had come into country with a very little in the way of food supplies, bringing only some leftover dehydrated vegetables from a previous expedition and concentrated squash for drinking. As such, a major shopping trip was necessary in Bishkek for the expedition food supplies. We had arranged through the agent for assistance from a local, Nadia, to show us to the best places and to help with translation and speaking with locals. This turned out to be an absolute necessity.

We started by getting local currency. This was relatively straightforward with assistance from Nadia, with several banks and smaller services able to exchange cash easily found by walking along the main streets. We had cash Dollars for exchange which was no problem, but cash Pound Sterling was more of an issue and wasn't accepted. Advice for others, bring Dollars or Euros. It was also easy to withdraw the local currency directly from Bishkek ATMs.

There were a few medical supplies that we needed to purchase in country as logistical issues had meant we had not managed to get them before leaving the U.K. Our team Doctor, with assistance from Nadia, was able to obtain most of the medical supplies need. There were no issues with obtaining the drugs once it was made clear that David was a medical professional. It was straightforward to obtain empirical antibiotics for common infections including co-amoxiclav, metronidazole and, ciprofloxacin. It was more difficult to obtain acetazolamide and we visited 4 different pharmacies before acquiring this. It was not possible to buy strong painkillers over the counter without a local prescription and so we were unable to buy codeine phosphate. We also discovered that in Kyrgyzstan they do not routinely use epipens in people with allergies, instead, they prepare this at the point of care (usually in hospital). We were therefore unable to purchase single use epinephrine in any pharmacy.

We then headed to one of the largest supermarkets in Bishkek, via a local "bus" ride. This was basically a Transit van with about a dozen seats, driven by a driver endowed with the typical cavalier approach to road safety that many mountain expeditions across the world seem to experience. He was more interested in his phone call than taking our money. Still, all's well that ends well.

What happened then was the longest period that any of us had ever spent in a supermarket. We were in there for around three hours, without feeling that we were being particularly slow. If we hadn't have had Nadia with us, god knows how long it would have taken and what we would have come out with. On numerous occasions we would be holding what we thought was on the list only to be saved with Nadia giving us a rather pained expression and explaining with infinite patience that we were holding something horribly inedible. Probably the best spent €30 on the trip!

We had our supplies calculated by weight to cater for three set menus. Breakfast was industrial amounts of porridge (easily found, both bulk and individual flavoured sachets) and dried fruit (plentiful in choice, including kiwi which none of us had seen before) along with muesli (granola not to be found anywhere). Lunches was mixtures of afore mentioned fruit, nuts (again, plenty of choice), chocolate bars (by the box) and cereal bars. This was more of an issue, seemingly not a big thing in Kyrgyzstan, and also very expensive. We decided to go for a mix of fruit bars, the cereal bars we could find, extra Snickers bars and local biscuits, of which there was an abundant choice, so Nadia's local knowledge was very welcome. Initial plan for dinners was rice, pasta and couscous. The latter was not to be found anywhere, so we ended substituting. Previous trip reports had warned against local pasta, citing inedible mush and waste, however we recognized Borelli on the shelves at no great expense so threw some caution to the wind. The menus were filled in with no other great difficulties, with everything else we were after found after a fair bit of comparing and ingredient deciphering by Nadia. One place where there was no shortage of choice was in the cured meat stakes, with the crowning glory being what we were assured was bear jerky. All told we filled three trolleys to the brim and set in for the mammoth job at the tills, much to the dismay of the poor lady at our chosen till.

We brought with us six large IKEA holdalls, which were perfect for carrying out all our supplies. The total bill for our three hours of effort was equivalent to a little under €450, which was for a varied selection of relatively high-quality food for three weeks for 7 people. Three of us went shopping along with Nadia, and we were glad we hadn't cut on numbers of people to help with the volume of food; any fewer and we would have struggled. Going in with a full list broken down by weight was a massive help; going in without Nadia or a decided list would have been an absolute nightmare. In particular there would have been a significant risk of ending up with completely wrong/inedible food at base camp – it was difficult identifying food types from packaging alone due to language and alphabet differences.

The town itself was fairly welcoming, without undue hassle. Neither the roads nor the streets seemed to be overly busy, but then these initial shopping trips had avoided the main Osh bazaar for convenience. Around the town were numerous coffee shops and canteens, which provided plentifully for little expense. The local beers also had much to recommend them; quite tasty, cheap, and of a strength that should be concerning. All in all, a good base for all the final preparations.

WEATHER MONITORING

Generally speaking we experienced stable weather with distinct patterns throughout our entire stay in Kainar Valley. Winds and clouds were non-existent early morning but would build throughout the day. Then, with only one exception, there was a period of strong winds and precipitation for a couple of hours mid-afternoon, after which the weather cleared again. Temperatures dropped noticeably during our 19 days in the valley but we benefitted from good snow and ice conditions throughout.

SCIENTIFIC STUDY

Wildlife

Altai accentor (*Prunella himalayana*)



To date there is no published field guide that comprehensively documents the wildlife of Kyrgyzstan. This presents a problem as without this knowledge it is not possible to conserve the wildlife, which is a pertinent issue under the growing threat of climate change and global biodiversity loss. The website www.wildlife.kg represents the first step in collating a comprehensive database on the wildlife of Kyrgyzstan. Alongside our expedition we documented the presence and recorded the local distributions of observed wildlife, we also obtained some high-quality photographs of species for the website. All findings have been shared with Thorsten Harder and Sergei Kulagin who set up the “Wildlife of Kyrgyzstan” website to contribute to their growing database. The information on this website is freely available in local languages and will be of interest to members of the public and useful to schools, universities and decision makers.

Overall, 48 different species were recorded during the expedition. This comprised of 31 plant species, 12 bird species and 5 mammal species. We also have 6 records of mammal evidence (e.g. foot prints) awaiting identification from Kyrgyzstan Wildlife. Please see the following tables for a summary of the flora and fauna documented including species and the maximum number of individuals observed on a single occasion (for birds and mammals). Plants were identified with the help of Brian Kabbes who leads botanical holidays in Kyrgyzstan

(www.kabbes.nl). The exact GPS locations of species were not recorded, however all records were within 8 km of base camp.

Summary of the plant species recorded

Scientific name	English name
<i>Adenophora himalayana</i>	Ladybell sp.
<i>Ajania trilobata</i>	Not known
<i>Allium barszczewskii</i>	Not known
<i>Caragana jubata</i>	Camel's tail
<i>Christolea flabellata</i>	Not known
<i>Dracocephalum komarovii</i>	Dragon's head sp.
<i>Dracocephalum stamineum</i>	Dragon's head sp.
<i>Erigeron acer</i>	Blue fleabane
<i>Gentiana karelinii</i>	Karelin's gentian
<i>Gentiana kaufmanniana</i>	Not known
<i>Gentiana turkestanorum</i>	Not known
<i>Leontopodium ochroleucum</i>	Himalayan edelweiss
<i>Lomatogonium carinthiacum</i>	Blue feltwort
<i>Oxytropis albana</i>	Locoweed sp.
<i>Oxytropis chionobia</i>	Locoweed sp.
<i>Papaver croceum</i>	Ice poppy
<i>Parnassia laxmannii</i>	Not known
<i>Pedicularis olgae</i>	Lousewort sp.
<i>Polygonum viviparum</i>	Alpine bistort
<i>Potentilla bifurca</i>	Forked-leaf cinquefoil
<i>Potentilla phyllocalyx</i>	Not known
<i>Pyrethrum karelinii</i>	Chrysanthemum sp.
<i>Rhodiola coccinea</i>	Not known
<i>Saussurea gnaphalodes</i>	Cudweed saw-wort
<i>Saussurea leucophylla</i>	Not known
<i>Saxifraga hirculus</i>	Marsh saxifrage
<i>Sibbaldia tetrandra</i>	Four-stamen sibbaldia
<i>Swertia marginata</i>	Not known
<i>Valeriana ficariifolia</i>	Not known
<i>Waldheimia tridactylites</i>	Ground daisy sp.
<i>Youngia tenuicaulis</i>	Not known

Summary of bird species recorded

Scientific name	English name	Maximum number seen
<i>Actitis hypoleucos</i>	Common sandpiper	1
<i>Corvus corax</i>	Common raven	1
<i>Gypaetus barbatus</i>	Bearded vulture	2
<i>Leucosticte brandti</i>	Brandt's mountain finch	30+
<i>Motacilla flava</i>	Yellow wagtail	1
<i>Motacilla personata</i>	Masked wagtail	2
<i>Phoenicurus phoenicurus</i>	Common redstart	2
<i>Prunella fulvescens</i>	Brown accentor	1
<i>Prunella himalayana</i>	Altai accentor	1
<i>Pyrrhocorax graculus</i>	Alpine chough	6

<i>Tachymarptis melba</i>	Alpine swift	2
<i>Upupa epops</i>	Eurasian hoopoe	1

Summary of mammal species recorded

Scientific name	English name	Maximum number seen
<i>Canis lupus</i>	Wolf	1
<i>Capra sp.</i>	Ibex sp.	~ 30
<i>Equus caballus</i>	Horse	~ 17
<i>Marmota sp.</i>	Marmot sp.	4
<i>Ochotona sp.</i>	Pika sp.	1

Glaciers



Glaciers around the world are retreating as a result of climate change. Project Pressure (www.project-pressure.org) is a charity which was founded by Klaus Thymann in 2008. Project Pressure's mission is to document the world's glaciers to create an open source digital archive (MELT see: <http://melt.project-pressure.org/melt-test/en/>), which anyone can contribute to. The aim of this is to enable visualisation of the impacts of climate change and collate data for scientific use and ultimately inspire positive action.

Overall, we photographed (and GPS referenced) 11 glaciers, including one on Project Pressure's high priority list. All glacier records were submitted to Project Pressure where they will contribute to a growing database of glaciers worldwide. See the table below for a list of the glaciers recorded and their

locations. Coordinates were recorded in two different formats due to differences between GPS devices used.

Summary of the glaciers photographed and their locations

Glacier reference	Location*
Glacier 1 (high priority)	N 41 48 30.96 E 77 45 4.16
Glacier 2	N 41 22 53.68 E 77 54 33.40
Glacier 3	N 41.371534 E 77.863109
Glacier 4	N 41 21 40.81 E 77 47 51.71
Glacier 5	N 41 48 29.39 E 77 45 36.01
Glacier 6	N 41.390205 E 77.861043
Glacier 7	N 41.376935 E 77.840760
Glacier 8	N 41.394618 E 77.790765
Glacier 9	N 41.394618 E 77.790765
Glacier 10	N 41.373191 E 77.834423
Glacier 11	N 41.394618 E 77.790765

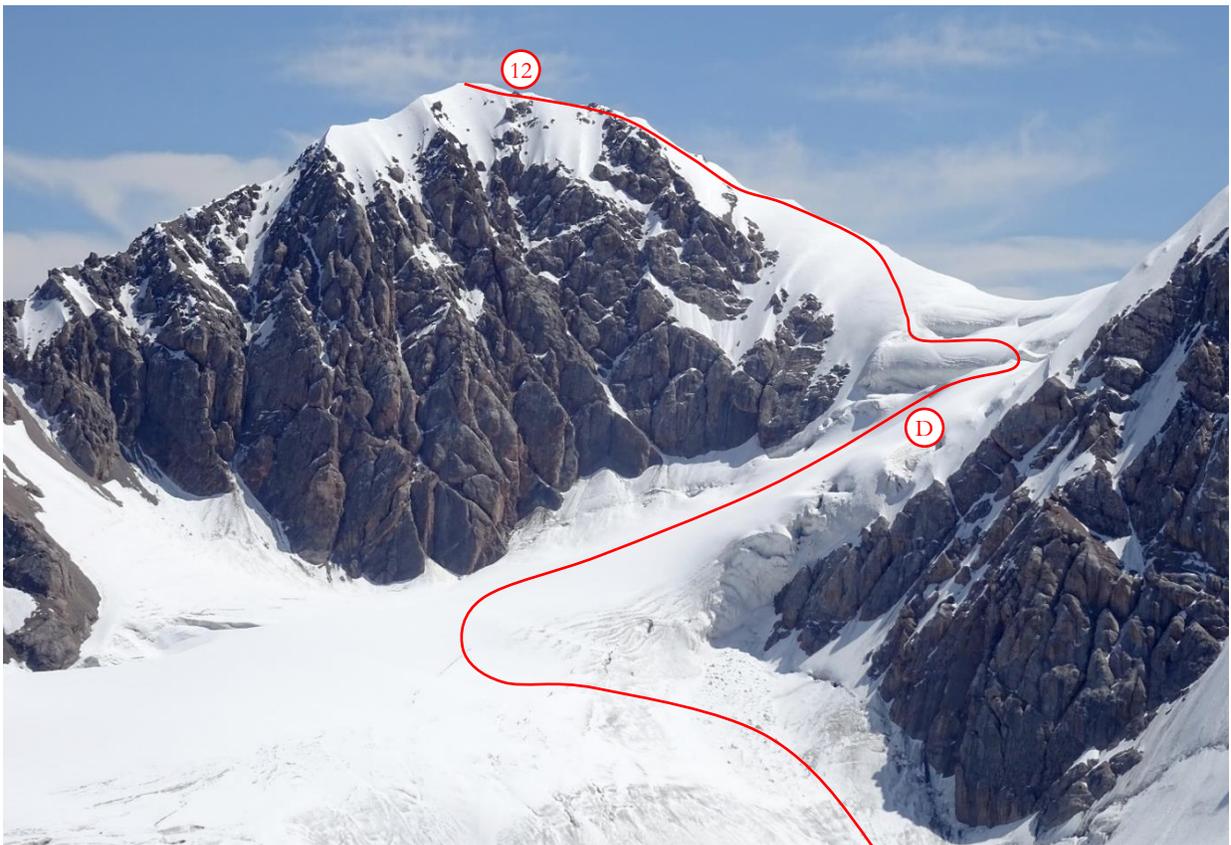
* Location from which the photograph of the glacier was taken

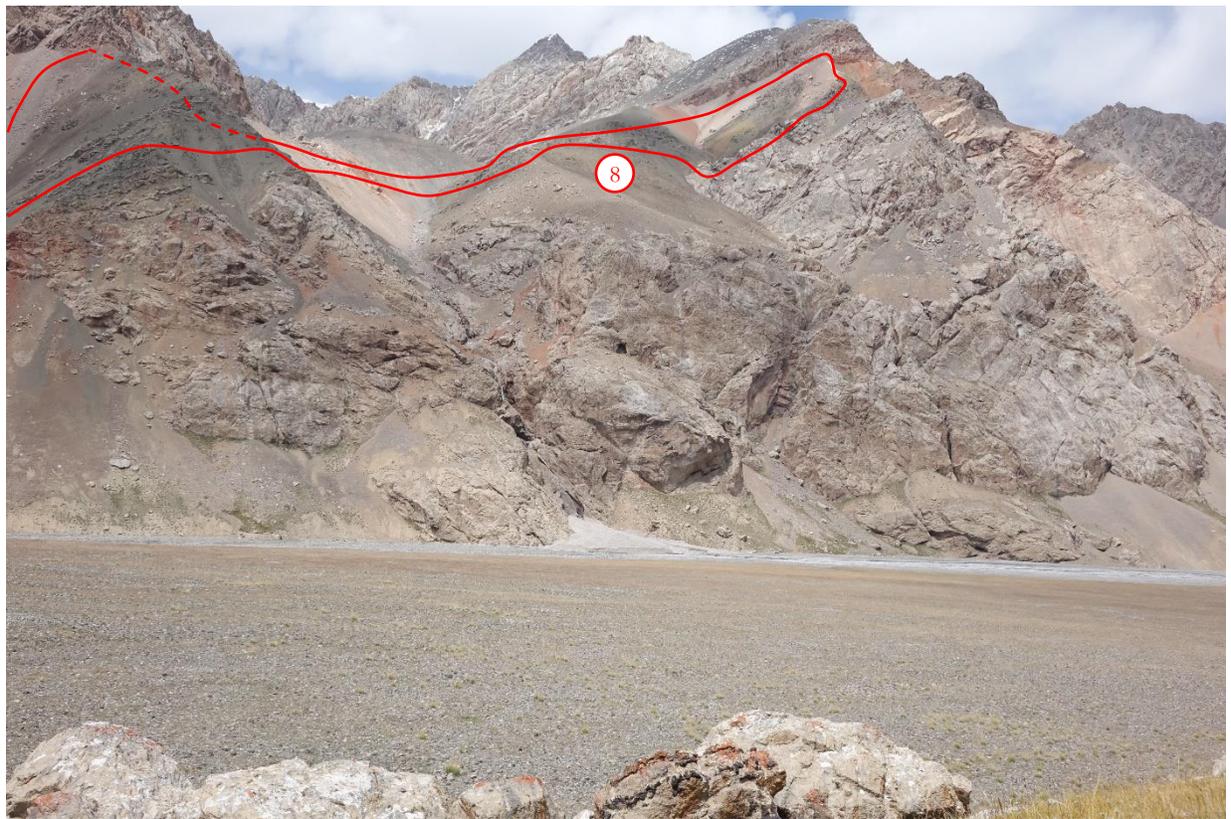
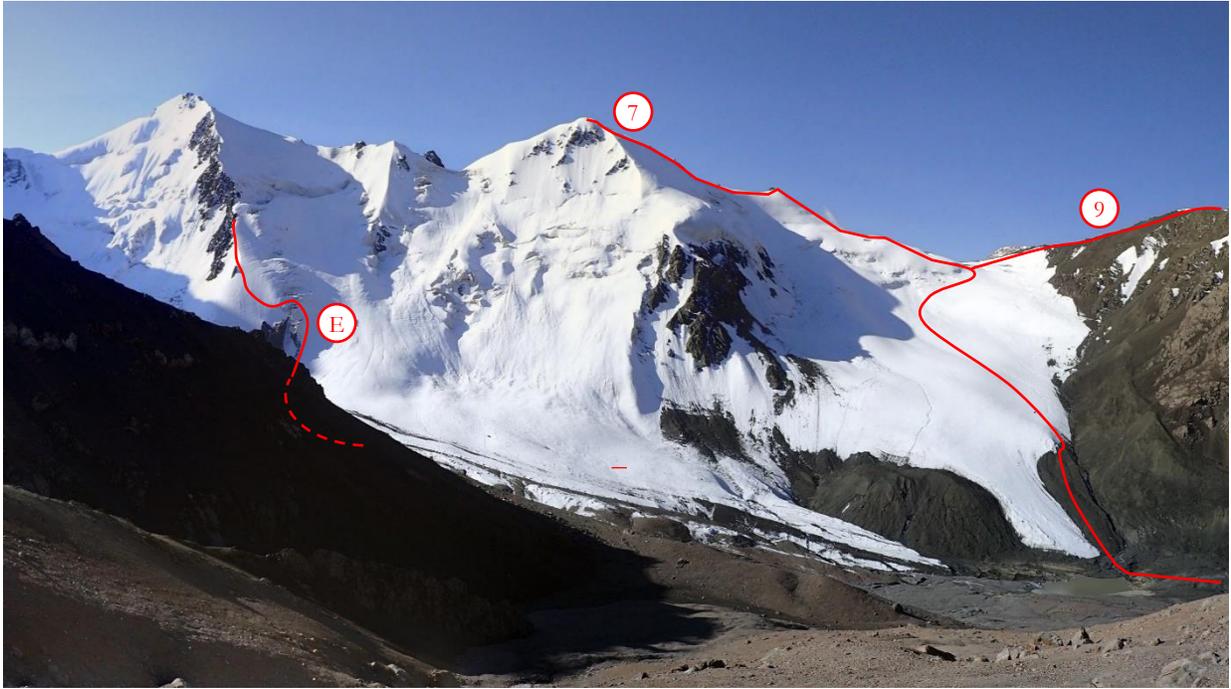
ROUTES

Topos













Successful Summits

ID	1a
Peak	Pik 4557.5
Location	41.431513°N, 77.898366°E
Altitude	4576m
Route	Direct slab cave route into south west breach, D-, 850m
First Ascent	Neil Cox, David Lyons-Ewing 11th August 2017
Route Description	
<p>Ascent: The difficulties are confined to the slab cave route at the start, 240m Severe 4a. Head up the easy angled slab to a cave just right of the water. Scramble easily to a grass ledge, move left for 8m and climb an obvious loose gully just before the waterfall. From here it is recommended to pitch the rest of the climb (4 pitches), although the rock is often of dubious quality and gear placements are sparse. Climb diagonal grooves right for 2 60m pitches into a scree corridor and scramble 70m to the bottom of a slab (pitch 3). Follow the bottom of this slab and then climb directly, taking the path of least resistance to the top of the slab and a scree plateau. Move left to a boulder belay 5m from the edge. From here follow route 1b to the summit. 4hrs 30mins to 6hrs 30mins.</p>	
<p>Descent: Reverse route 1b. 2hrs to 2hrs 30mins.</p>	

ID	1b
Peak	Pik 4557.5
Location	41.431513°N, 77.898366°E
Altitude	4576m
Route	Slab traverse into south west breach, PD-, 850m
First Ascent	Stuart Gillan, Tom Harding 11th August 2017
Route Description	
<p>Ascent: Traverse right and upwards on scree beneath the slab until a break leading diagonally left is reached. Follow this upwards over broken rock to an easy scramble beneath a large overhanging rock. Further scree above this scramble leads to the top of the slab. Continue west along scree gradually gaining height and eventually following the cliff band on your right (beware of falling rock). At an obvious south west facing breach climb steep scree to a saddle at 4400m. Turn right and climb loose rock and scree to the flat summit ridge which can be followed for 200m to the true summit. 4hrs to 6hrs.</p>	
<p>Descent: Reverse ascent route. 2hrs to 2hrs 30mins.</p>	

ID	2
Peak	Pik 4375.2
Location	41.379693°N, 77.910640°E
Altitude	4418m
Route	East Ridge, PD-, 980m
First Ascent	Matt Lewis, Scott Martin, Hannah Meinertzhagen 12th August 2017
Route Description	
<p>Ascent: Gain the high grassy ledge above the moraine in Kainar Valley on the west of the gorge flowing out of valley near the hunters' hut. Follow an ibex trail across scree to join the stream. Follow stream bed up the valley (crossing regularly) until a large erratic is seen in centre of the valley, to the right of the stream. Leave the stream bed on scree to pass the erratic on its right-hand side and then continue to follow a scree spur up the centre of the valley to reach the bare ice of the glacier at 4150m. Join the glacier on the right hand side, and take a rising traverse to the left-hand side (10°); handrail the left-hand side of glacier to avoid crevasses as it steepens up (20-25°). Follow the top corner of glacier to climb up (30-35°) to a flat mud ledge. Axes and crampons can be left here, and then follow a rising loose scree traverse to short slab scramble before attaining summit. 5hrs 30mins to 6hrs 30mins.</p> <p>Descent: Reverse ascent route. 4hrs to 4hrs 30mins.</p>	

ID	3
Peak	Unmarked peak
Location	41.368503°N, 77.861738°E
Altitude	4701m
Route	South west ridge via north face, D-, 450m
First Ascent	Neil Cox, David Lyons-Ewing 13 th August 2017
Route Description	
<p>Ascent: From a camp on the glacier walk to near the head of the valley (4315m) and climb 40° ice to the bergschrund (4387m) on the north face of the ridge. Taking care to avoid the loose rock at the top, climb two 60m pitches and one shorter pitch of steep ice (max 60°) to reach the ridge at 4502m. Follow this west up 40° snow/ice to reach the snow dome summit. 3hrs to 4hrs 30mins.</p> <p>Descent: Reverse ascent route setting Ablakov anchors for the steep ice. 2hrs to 3hrs.</p>	

ID	4
Peak	Unmarked peak
Location	41.370145°N, 77.822965
Altitude	4666m
Route	North face at western end of ridge, AD+, 470m
First Ascent	Neil Cox and Stuart Gillan 17th August 2017
Route Description	
<p>Ascent: From high camp 2 climb the furthest west scree pile to 4510m (1hr to 1hr 30mins) to gain the ice slope leading to the north-east end of the ridge. A short climb/traverse left on easy angled snow allows a belay to be established on a large snow platform out of the fall line. Climb three 50-60m pitches of ice (max 55°) to gain the ridge at 4618m (1hr 15mins to 2hrs 30mins). When climbing ensure you stay to the left of the large rocky outcrop to protect against rock fall from the large cliff on the right. Belays can either be set using ice screws or slings around frozen boulders on the route. This climb could probably be achieved in two 60m pitches if setting ice screw belays and moving together on the easier angled ice near the top. Cross over the top of the ridge and cut back on yourself to climb an easy, but loose and poorly protected gully on the left towards a scree ledge and chimney. Follow the ledge left and around the corner, traversing it to its termination overlooking the ice slope climbed previously (if pitching this a 60m rope will suffice for the start of the mixed gully to here). A few meters back along the traverse a short pitch following a crack (HVD) leads to a slab. Turn right and follow the easy slab to the obvious large boulder marking the summit (30mins to 1hr 15mins). 2hrs 45mins to 5hrs 15mins.</p> <p>Descent: Reverse ascent route. It is possible to lower the first climber down the crux and then wrap the rope around the edge of the slab and down the crack to lower the second. 2hrs to 3hrs 15 minutes.</p>	

ID	5
Peak	Pik 4724.9
Location	41.370145°N, 77.822965°E
Altitude	4723m
Route	West ridge, PD, 80m (<i>from route 4</i>)
First Ascent	Neil Cox and Stuart Gillan 17th August 2017
Route Description	
<p>Ascent: From the summit in route 4 descend the slab edging right before carefully down climbing the obvious (and loose) break. Follow the snow ridge onto good scree and loop round the back (south) of the next peak, gradually working your way upwards (with some easy scrambling) to reach a scree ridge which can be followed to the summit. 1hr (<i>from route 4 summit</i>).</p> <p>Descent: Reverse ascent route. 1hr.</p>	

ID	6
Peak	Pik 4632.8
Location	41.357120°N, 77.796635°E
Altitude	4625m
Route	North Ridge, PD-, 850m
First Ascent	David Lyons Ewing, Hannah Meinertzhagen 17 th August 2017
Route Description	
<p>Ascent: From advanced base camp move into the side valley and climb the scree that leads to the ridge on your west side. Once the ridge is gained follow it south passing broken rocky ground until a snow field that leads to the summit is reached. Climb this for 30m at which point it steepens for the final 5m. Continue along the final 20m of ridge to the summit. 5hrs to 6hrs.</p> <p>Descent: Reverse ascent route. 3 to 4hrs.</p>	

ID	7
Peak	Pik 4785.4
Location	41.349781°N, 77.812428°E
Altitude	4785m
Route	East Ridge, PD-, 1010m
First Ascent	Matt Lewis, Scott Martin 17 th August 2017
Route Description	
<p>Ascent: From advance base camp move up moraine to reach the snout of the two glaciers. Progress up the western glacier, initially following scree at the northern edge of the glacier. Ascend the glacier to the obvious saddle, avoiding small but visible crevasses. From the ridge head south-east, ascending a 40° ice slope to an obvious rocky outcrop. Either pass this on its northern side or over its low point to continue on a gradually ascending snowy ridge. Follow this east-south-east towards a larger rock outcrop with an obvious scree filled gully towards its southern side. Ascend this loose scree gully, taking great care with loose rock if moving together. Once at the top of the gully, follow the short section of rocky ridge east to the final short snow ridge to the summit. 4hrs to 5hrs.</p> <p>Descent: Reserve ascent route. 2hrs to 3hrs.</p>	

ID	8
Peak	Pik 4444.6
Location	41.396001°N, 77.790070°E
Altitude	4465m
Route	South face, F, 690m
First Ascent	Neil Cox 18 th August 2017
Route Description	
<p>Ascent: From advance base camp walk north and cross the river to the left of the waterfall. Climb the steep scree hill in front of you. Approximately 2/3 of the way up start traversing right, alternating between loose rock and scree, to eventually gain a mini-valley well above the waterfall. Contour carefully across this exposed section on very loose orange scree and then climb better scree on the opposite side to gain an easy angled ridge. Follow the spur to 4250m before turning to directly ascent the scree slope leading the summit ridge. At the top turn left and follow the ridge over a couple of false summits to eventually reach the true summit. 3hrs to 4hrs.</p> <p>Descent: directly descend the steep scree slope just after the summit. Then make a high traverse to gain the top of the scree slope which can be directly descended to the river and the valley (note this river is glacier fed and can rise as the day warms up so be prepared for wet feet!). This descent route is recommended as it avoids the exposed and loose orange scree mentioned in the ascent. It is not recommended for ascent however due to the high physical effort involved in climbing the initial scree slope all the way to its top from the valley floor. 1hrs 30mins to 2hrs 30mins.</p>	

ID	9
Peak	Pik 4722.3
Location	41.353000°N, 77.795000°E
Altitude	4727m
Route	South-east ridge, PD-, 950m
First Ascent	Neil Cox, Tom Harding, Hannah Meinertzhagen 19 th August 2017
Route Description	
<p>Ascent: From ABC head south up into the valley, first across scree then by keeping right (west) onto the glacier itself (2hrs). Continue up right where the slope steepens slightly crossing several minor crevasses before reaching the wide col. The route then heads north west along the obvious rocky ridgeline first on snow then past loose but straightforward pinnacles climbing whichever side you see fit. The angle becomes shallower until the rocky but very scenic summit is reached. 4hrs to 4hrs 30mins.</p> <p>Descent: Reserve ascent route. 2hrs to 3hrs.</p>	

ID	10
Peak	Pik 4966.2
Location	41.376700°N, 77.821011°E
Altitude	4963m
Route	Western Cwm, PD-, 1190m
First Ascent	Stuart Gillan, Matt Lewis 22 nd August 2017
Route Description	
<p>Ascent: From ABC follow side valley until level with snout of glacier on Eastern side of valley; follow slope up scree filled cwm on western side of valley, taking care of large, unstable scree. On reaching glacier at the head of the cwm follow gentle rising slope, avoiding small crevasses and taking care of corniced ridge approach to summit. 5hrs 30mins to 6hrs 30mins.</p> <p>Descent: Reverse ascent route. 2hrs 30mins to 3hrs.</p>	

ID	11
Peak	Pik 4668.9
Location	41.341445°N, 77.805133°E
Altitude	4678m
Route	North ridge, PD-, 900m
First Ascent	Stuart Gillan, Matt Lewis 23 rd August 2017
Route Description	
<p>Ascent: From advance base camp follow the side valley bottom to the first glacier on the eastern side. Follow the easy slope on the glacier's northern side to the saddle, taking particular care of large crevasses on final 200m before the saddle. Follow the ridge south before turning west and traversing along a scree slope on its southern side below loose rock. Cross when convenient to the north side of ridge before climbing a short snow slope to gain the summit. 4hrs 30mins to 5hrs 30mins.</p> <p>Descent: Avoid the final summit ascent by contour back to the saddle via scree and snowfields on the northern side of the ridge. From the saddle reverse the ascent route. 2hrs 30mins to 3hrs.</p>	

ID	12
Peak	Pik 5044.1
Location	41.361530°N, 77.843906°E
Altitude	5042m
Route	North-east ridge, PD, 390m
First Ascent	Neil Cox, Tom Harding, David Lyons-Ewing, Scott Martin, Hannah Meinertzhagen
Route Description	
<p>Ascent: From advance basecamp follow the valley to the south initially across scree and then onto a large glacier system. The glacier is followed around the left (east) passing under a number of large seracs. There was evidence of previous ice fall so care should be taken. Towards the head of the valley the glacier climbs steeply with several crevassed areas, these can mostly be avoided by keeping right. This brings you onto a large gently sloping area where a comfortable camp can be made if required at around 4600m (3hr). From this area climb south towards the col between the peak to be summited and the adjoining Pik 5147.4. The first obstacle is a set of large but stable seracs that can be passed via a large snow bridge (snow protection useful). Once the col is reached head west following the ridgeline. A few steeper icy sections (Scottish I/II) and some loose rocky sections lead to the heavily corniced summit. 5hrs to 6hrs.</p> <p>Descent: Reverse ascent route. 3hrs 30 mins to 4hrs 30 mins.</p>	

ID	13
Peak	Pik 4513.8
Location	41.428735°N, 77.875643°E
Altitude	4520m
Route	Southern couloir, F, 1040m
First Ascent	Stuart Gillan, Scott Martin 26 th August 2017
Route Description	
<p>Ascent: From base camp follow the south side of Kainar Lake before crossing to the northern back at its western end (45 mins). Traverse the bank to gain the scree slope lead to a scree bowl (45 mins). From here climb easy angled scree to the northern end of the scree bowl to a gain ridge (1hr 30 mins to 2hrs 30 mins) which can be followed east to the summit (30 mins). 3hrs 30mins to 4hrs 30 mins.</p> <p>Descent: Reverse ascent route. 1hr 30 mins.</p>	

ID	14
Peak	Pik 4636.1
Location	41.433263°N, 77.914266°E
Altitude	4640m
Route	South face, F, 1160m
First Ascent	Stuart Gillan 27 th August 2017
Route Description	
<p>Ascent: Ascend easy scree below the slab from the beach at the eastern end of Kainar Lake to a point below beneath the red scree. Follow the scree over short slab scrambles east until a gorge is reached. From here head north, diverting onto the western slab where necessary, until the gorge bottom is accessible. Scramble down the gorge for approximately 30m until its eastern exit is gained. Again, follow scree east over short slab scrambles until the main scree field is gained. Continue up and east to gain a saddle, turning to follow the ridge east to gain the rocky summit. 3hrs 30mins to 4hrs 30mins in ascent.</p> <p>Descent: Descend by returning to saddle and then following scree directly to the valley floor. 2hrs 30mins to 3hrs in descent.</p>	

Routes Retreated From

ID	A
Peak	Pik 5020.6
Route	South-west ridge via north face, D-, 200m (<i>to turn-around</i>)
Climbers	Neil Cox, David Lyons-Ewing 15 th August 2017
Route Description	
<p>Ascent: Follow route 3 to ridge. Here a long loose ridge blocks progress. 2hrs to 2hrs 30mins. <i>A circumnavigation of the entire mountain showed no easy ascent route for this peak. The best option might be to climb same ridge further west (steeper and longer) so as to minimise the time spent traversing over loose rock. However it is still unlikely that this would be a viable route to the summit.</i></p> <p>Descent: Reverse ascent route. 1hr to 1hr 30mins.</p>	

ID	B
Peak	Pik 5044.1
Route	West buttress
Climbers	Stuart Gillan, Tom Harding 26 th August 2017
Route Description	
<p>Ascent: An early attempt was made to achieve the ridge to the north of Pik 5044.1. This climbed the rocky buttress seen on the right hand side of the large alpine bowl. Rockfall forced a retreat. 1hr 30mins. <i>This route cannot be recommended and as was proven later in the expedition, access to the ridge from the adjoining valley to the west can be made by an easy scree slope.</i></p> <p>Descent: Reverse ascent route. 30mins.</p>	

ID	C
Peak	Pik 5044.1
Route	North face at western end of ridge, AD+, 420m (to turn around)
Climbers	Neil Cox, Stuart Gillan 17 th August 2017
Route Description	
<p>Ascent: As route 4 to ridge. 2hrs 15mins to 4hrs. <i>Progress along the ridge to the summit may be viable. However an easier route was spotted and later climbed as route 12.</i></p>	

ID	D
Peak	Pik 5044.1
Route	North-east ridge, F, 100m
Climbers	Neil Cox, Tom Harding, Hannah Meinertzhagen 21 th August 2017
Route Description	
<p>Ascent: As route 12. 45mins. <i>Attempt abandoned due to suspected hypothermia onset and exhaustion. Summit was later gained via same route in route 12.</i></p> <p>Descent: Reverse ascent route. 15mins.</p>	

ID	E
Peak	Pik 4898.7
Altitude	4640m
Route	North-west spur, 350m, AD (to turn-around)
Climbers	Neil Cox, Tom Harding 26 th August 2017
Route Description	
<p>Ascent: From high camp 4 cross a number of closely grouped crevasses before starting to climb the spur on snow and ice of variable quality (max 50°) to a rocky outcrop at 4430m where the gradient lessens. Continue up on variable snow and ice (max 45°) until the bergschrund is reached at approximately 4600m. 1hr 30mins to 2hrs 30mins. <i>The route on from here is viable but delicate snow bridges would need to be crossed before a steep but short ice wall is climbed to gain a snow/ice ridge leading to the summit.</i></p> <p>Descent: Reverse ascent route. 1hr to 1hr 30mins.</p>	



OTHER OBJECTIVES

Kayaking

The glacial rivers above and below base camp were scouted. Neither contain any significant rapids or particular interest for a kayaker. The river above base camp wouldn't be paddleable at the water levels we observed, and the one below base camp would almost certainly be a scrape in several places.



Caves

We identified several cave entrances and investigated two of these (5 and 8¹). Both entrances investigated were small hollows rather than established cave systems. It is suspected that this would be the case of the other entrances listed in the table below.

¹ We attempted to paddle across Kainar lake on a thermarest raft. We used rope for a safety line but ran out. As such we weren't able to fully verify the extent of this cave. However, we got within 30m and the entrance did not look promising.

ID	Cave Entrance	GPS Location of Photo	Bearing of Entrance from GPS Location
1		41.223984°N, 77.474673°E	324°
2		41.232223°N, 77.482104°E	292°
3	No photo	41.234682°N, 77.491440°E	Unknown
4	No photo	41.234725°N, 77.491719°E	Unknown
5		41.235328°N, 77.490640°E	100°
6		41.241848°N, 77.513933°E	Unknown
7		41.241848°N, 77.513033°E	348°
8		41.243217°N, 77.525794°E	358°

FUTURE POTENTIAL

The eastern end of the Borkoldoy range offers continued potential for first ascents and new routes. The rock quality is poor but there are still new lines and unclimbed peaks in the areas we focused on. Our team did not make it to the head of the valley so any peaks there will be unclimbed from their eastern side (most/all have already been climbed from the west).

