

1/ The routes of the southwest face



The main routes on the Southwest Face of Shisha Pangma (variants excluded. Credit : GMHM 2014), from left to right:

Indigo: Spanish route to the West summit, 2000, by E.Sanchez. & E.Callado.

Red: Swiss Polish route to the Central summit, 1990, by E.Loretan, J.Troillet & Voytek Kurtyka.

Pink: South Korean route, 2001, by Park Jun-Hun & Kang Yeon-Ryoung.

Blue: Slovenian route, 1989, by A. Štremfelj & P.Kozjek.

Green: British route, 1983, by D.Scott, A.MacIntyre, R.Baxter-Jones.

Brown: Wielicki route, 1993, by K.Wielicki.

Yellow: Ueli Steck routes combination in 2011.

Purple: Spanish route, 1995, by C.Figueras & J.Permanyer.

Steck said that he arrived at the foot of the mountain without a topoguide, he and his teammates deciding however, after a while, (when considering Bowie was not enough acclimatized) that he would try for the summit via the British route (at least they knew that one). At 6800m on the night of the 16 to 17 April 2011, Steck changed his mind due to rock fall that he heard somewhere in the Pea Pod, he turned right into the Wielicki route, then exited from the face by the Girona Corredor. For descent, he would use the classic British descent route.

2/ The highest shot of Steck on the mountain

Discovering the reports on his Shisha climb, I first saw a picture of Steck in the following report with this special caption "Ueli Steck before summit ridge."

<http://www.wengerna.com/success-on-shisha-pangma-4-21-2011>

It is a capture screen from a short movie shown on the official website of the expedition: <http://www.himalayaspeed.com>



I found the caption strange as Steck obviously seemed still to be on the face itself and significantly below the ridge.

3/ The official timing statement

I went into various accounts that I could gather on the Internet to examine the facts, and eventually isolated one piece of information which puzzled me in connection with the aforementioned caption. Steck's official timing in following video (at 1'43''):

<http://www.ukclimbing.com/news/item.php?id=61915>

- “- 10h25pm – leaves ABC
- 1h10am – crosses bergschrund
- 9h15 am – **approaching summit ridge**
- 11h40 am – summit
- 2h20 pm – descending upper snow slope
- 4h39 pm – jumps lower bergschrund
- 6h20 pm – arrival ABC

Official times presented here are Nepali time and Steck's measurement (confirmed by him). Tibetan/Lhasa time is +2h15 (UTC +8) compared with Nepal time (UTC + 5h45): 2h15 difference between both times.

There are no written accounts anywhere of altitudes associated with this official timing set **but I instantaneously made the link with the aforementioned picture, followed by some immediate remarks. Was it the same place at the same time, at which altitude?**

31/ What altitude?

On this picture, Steck is at **approximately 7288m**. Don Bowie says “about 7300m” in the video. Googlearth estimation 7310m. Further manual crosschecks based on aerial pictures give 7292m (problem of shooting angle of the pictures...). Moreover, knowing the headwall sizes 300m, the Girona exit being at about 7550m and that Steck has obviously not reached the beginning of the difficulties, he should logically not be above 7250m. Average from the four sources produces 7288m.

The summit ridge and the exit of the Girona Corredor lie at approximately 7550m (7550m for Figueras (1995), 7600m for Moro (2004)). After a few crosschecks with aerial pictures and altitudes given from main summit and Peak C 7795, it rather seems 7550m.

⇒ **So “before the summit ridge” effectively looks like a rather vague caption knowing that while still on the face the climber is significantly below the summit ridge; here indeed, at least 250m below it.**



Another zoomed view of the upper half of the face with blue circle indicating the location where the picture was shot. This perspective shows Shisha main summit looking only slightly higher than Girona's exit.

32/ What time?

I first thought the 7288m picture to be associated with the 9h15am timing described in similarly vague words at similar 7200m altitude.

But in the comments of one of the official videos, one can hear (from 3'32"),

www.himalayaspeed.com/category/mountains/shisha/

“(Don Bowie) – This morning looking for him on the face, using telefoto lenses, we couldn't find him. And then **about 10 o'clock we did spot him.**(...) (at) probably 7300m, and then he disappeared out of the sight, we haven't heard anything from him since (...) We were looking pretty hard into the couloir to see if he was coming down and he wasn't coming down. Parallely some pretty heavy stone falls coming down the couloir. This afternoon we finally spotted him again, coming down a gully even further right”

Same comment differently said in the other official video (from 1'01"):

www.himalayaspeed.com/2011/04/ueli-reports-on-shisha-pangma-ascent/

precisely when speaking about Steck *traversing* at about 7288m:

/(Rob Frost) – He's going up. He's seems going for a ride.

(Don Bowie) – if he left at 10, let's say he can get back at 7, that's plenty of time to get to the summit and back.”

So it seems his partners consider that he's on that picture at 10am or short sooner, this being stated in two different ways through the official videos of the expedition.

- ⇒ Knowing that they started together from Kathmandu, impossible to think that they wouldn't have all adopted the same Nepali time to organize their trip.
- ⇒ Moreover, it's hard to see what a ¾ hour difference could correspond to in terms of UTC differences...
- ⇒ Is it possible that neither Frost nor Bowie could read their watch and would have rounded up the time from 9h15am to 10am in front of the camera? Why not report 9h15 accurately then?
- ⇒ Steck wrote in some reports that he could receive a weather forecast SMS during his ascent (why didn't he use that phone to send something from the top?) but there are no mentions in the videos of Frost or Bowie being able to communicate with him during the day, for instance, at the same time that Steck was meant to have his pause at 7200m...

After checking that with Steck, **he says he isn't sure about the altitude of the 9h15am timing that he measured** at a pause, which was meant to be about 7200m in the official reports (50 to 100m difference are possible due to GPS lack of precision according to him). It seems clear anyway that Steck was photographed by his ABC teammates while climbing (in fact traversing)

and not during a pause. The latter may have happened shortly before that picture was taken: either on the left (tracks visible coming from left) on the ridge if coming from the Wielicki (official account), or left below him at the itinerary bend that he drew (official itinerary drawing)? **For that reason, is it possible that he may have made this 9h15 pause near to that same 7288m place rather than at 7200m? If the exact location of the pause is unknown, deductions from Steck's itinerary drawings and accounts indicate that it more likely seems that it should be closer to the picture showing Steck at 7288m. If the altitudes seem close, now the times difference is huge!**

Having asked Rob Frost to be precise with the timing (that could likely have been done thanks to the EXIF data of the pictures), **he refused to share his data with proper arguments other than stating, "Ueli is an honest guy"**. Ok so why not sharing it if nothing is wrong with him?

- Not underlined are the **timings/places ABC members could witness directly**
- Underlined **in blue** are the timings only **Steck could measure** (during the night in the face, then on top – which is impossible to observe from the ABC)
- Underlined **in red** is the timing measured by Steck **at an uncertain altitude** (knowing approximation of his altimeter and lack of notes, he's sure about summit altitude only) whereas he was watched by ABC members and quoted in videos as **10am, for an altitude estimated at 7300m**. One can see Steck traversing to the upper part of the Girona's exit couloir, meaning he's not checking his watch or having a pause.

"- 10h25pm – leaves ABC

- 1h10am – crosses bergshrund

- 9h15 am – approaching summit ridge

- 11h40 am – summit

- 2h20 pm – descending upper snow slope

- 4h39 pm – jumps lower bergshrund"

- 6h20 pm – arrival ABC

After continued study based on pictures of GMHM, it seems rather likely that the picture showing Steck may have been taken between 9h15 and 9h29, rather than at 10am. But it doesn't explain why Bowie said twice in front of the camera that it was 10am when photographing Steck at 7288m...3/4 an hour being quite a round up!

⇒ [Further explanation about timing final estimation between 9h15 and 10am at the very end of this article \(Annex 1\).](#)

33/ Which variant on the way up?

Paradoxically, in the same first official report Steck mentions "the first sun rays reached me on the ridge", same in his book (p231 "Die Luft hier oben ist schon recht dünn, und über mir treffen die ersten Sonnenstrahlen auf den Grat"). But already on this picture showing him at 7288m, one can see the sun hitting the ridge directly on his left, precisely where his own tracks seem to come from (corroborating official account of coming from the Wielicki's)...However, if retaining his official route drawing, might he have done a traverse towards the ridge to have a better view then decide to traverse back (logically marking a bend)? Later on, when asked in Kathmandu about his exact route drawing, Steck just kept saying to me: "I don't remember, I don't remember".



On these both pictures (left excerpt from official website, Rob Frost ; right one, extracted from a tv report), route marked as coming from below. What's the right one?

<http://www.himalayaspeed.com/2011/04/shisha-speed-more-details-about-ueli%E2%80%99s-ascent/#more-93>

"(Rob Frost) When I awoke the following morning I tried to find him on the south face through the telefoto lens but had no luck. It was like finding a needle in a haystack- a dot in the abyss of a 2,000 meter Himalayan wall. Eventually I spotted him way off to the right of the British route **as he was traversing into a hidden gully just below the summit ridge**. We caught some of his descent several hours later, and then he strolled into ABC after his sub 20 hour speed ascent of 8027 meter Shisha Pangma."

=>This statement rather sounds like an upper traverse variant but needs to be checked.



Left: almost impossible to notice the tracks further left in the plain sunshine, but possibly continuing there...Right: the upper variant more likely used by Steck during that stage of his climb?

4/ A problem of space and time combination

Having shown *a priori* the possible link between, on one hand this 9h15am official timing “*approaching the summit ridge*” at approximately 7200m, and on the other hand this picture and its caption “*before the summit ridge*” showing Steck at about 7288m shot by Frost/ Bowie at “*about 10am*”, **I must conclude and can anyway hardly comprehend how Steck could climb either of these scenarios***:

If 9h15: from 147m/h (in the face from 6100m to 7288m) to 306m/h (from 7288m to the top) = MORE THAN DOUBLE HIS SPEED

If 10h: from 134m/h (in the face from 6100m to 7288m) to 445m/h (from 7288m to the top) = MORE THAN TRIPLE HIS SPEED

At first sight, it seems logical to exclude the second possibility, meaning CBA members definitely didn't say the exact time at all in front of the camera? It's unfortunate that they couldn't confirm the timing with their camera's data.

* Not including the possibility for the pause altitude to be lower than picture showing Steck at 7288m, one has to note that these scenarios also do not include the duration of the pause at Girona's exit. The numbers presented here are thus **minimum** speeds.



The route of Steck on the SW face of Shisha Pangma seen from the footstep of the mountain in a roughly southern direction. Yellow circle shows Steck picture's highest location at about 7300m.



A question of point of view! From the BC in the overall axis of the route the encircled area looks quite close to the top.
 On this picture shot by Koichiro Ohmori from the sky (roughly in a western direction), the 7288m place (red point) looks like half way up the whole route.

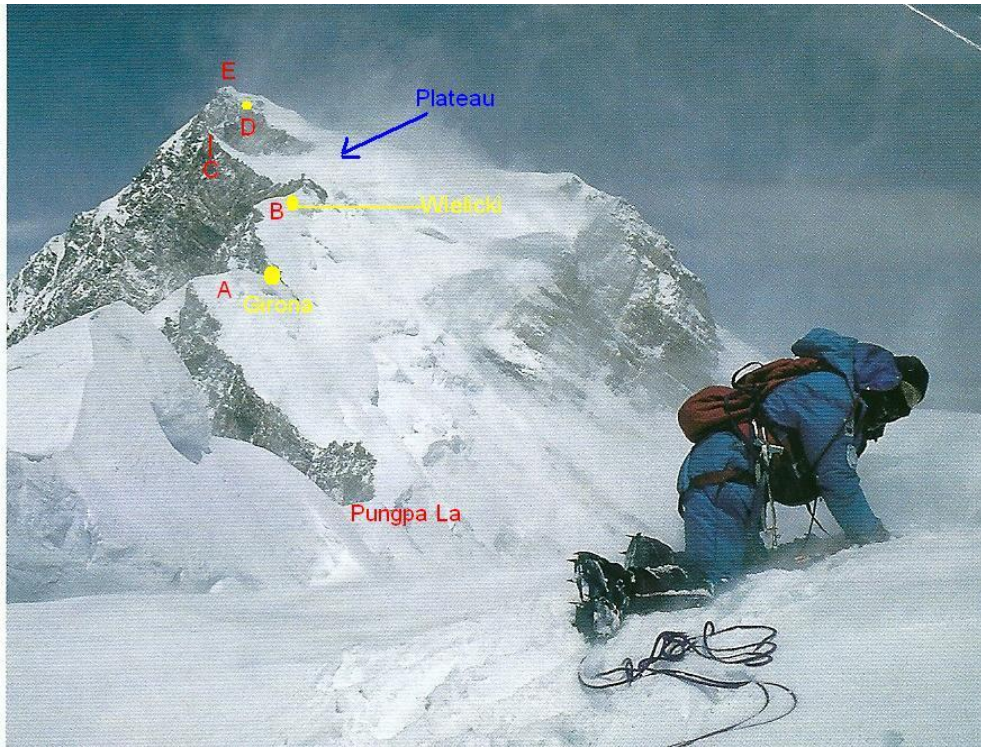
41/ The headwall

The first timing seems dubious, knowing that the most technical part of the Girona Corredor lies precisely from 7300m to the ridge exit at 7550m, meaning at least 250m of difficulties to overcome (Wielicki needed 3h in more difficult ground – a 250m like rock barrier further left in the face, up to rock grade V, climbing it at 75m/h).

In his winter 2004 attempt, Moro described the final section of the Girona Corredor (from 7150m to 7600m) as presenting **some very steep sections with a rock wall**. The pair needed 5h30 to overcome this difficult final section in hard winter conditions (-50°C) (speed: 81 m/h), between 6am and 11h30 am. Drier/harder conditions may easily explain the difference.

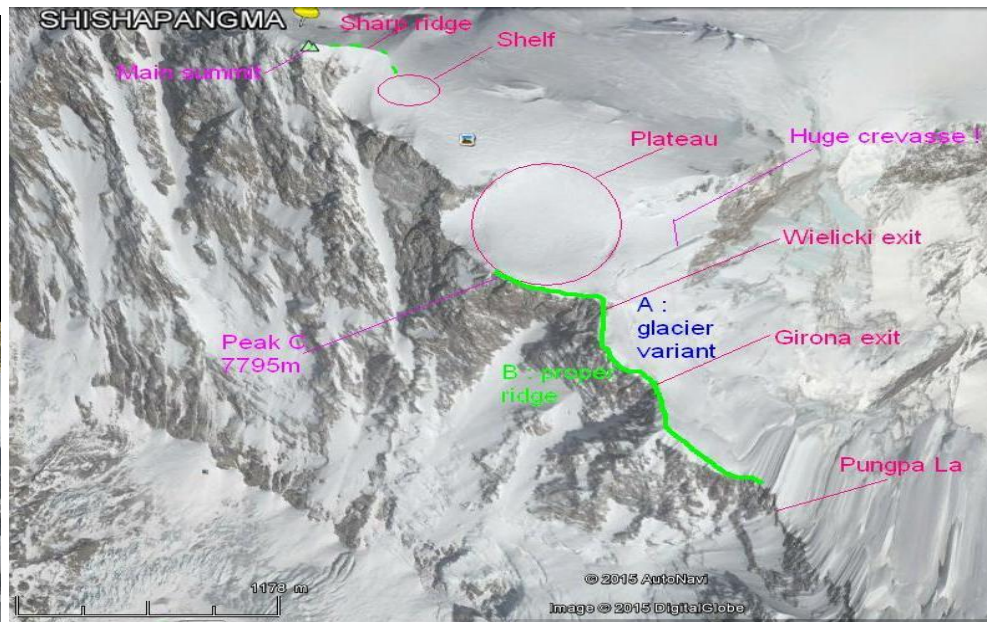
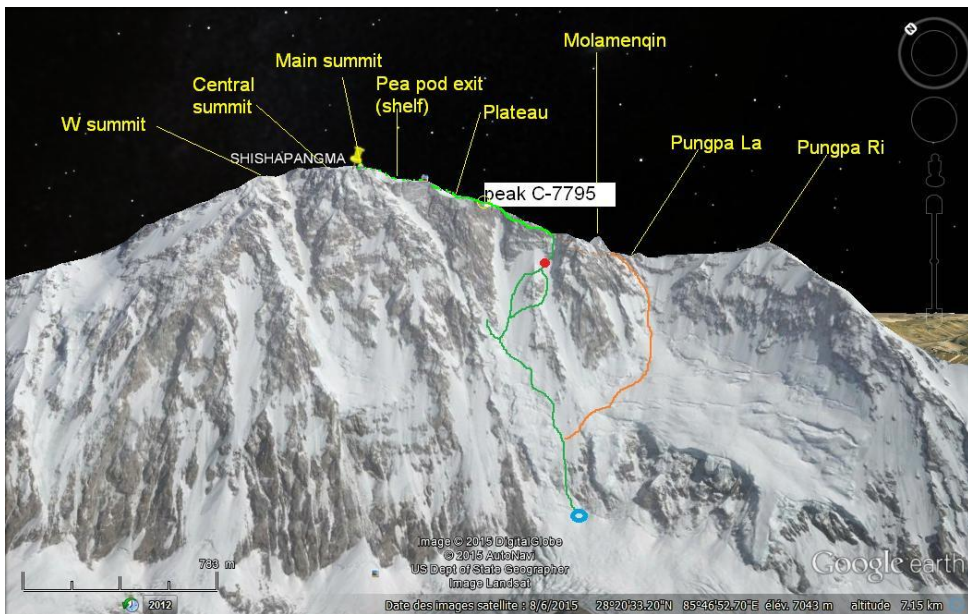
Steck in his book “8000+” mentions 300m of “serious” difficulties (“*Die Letzten 300 Höhenmeter sind technisch anspruchsvoll*”, p231) and does not mention any acceleration in it but the ability to climb continuously (p230-231) instead.

⇒ Is it possible to climb twice faster in such technical ground, on sight?



Left: another view of the ridge from Pungpa Ri, showing the snowy seracs slopes down to the exits of Girona and Wielicki's routes, then the plateau, then the final summit ridge section. Collection: Doug Scott (P307).

Right: in 2005, Simone Moro on the gentle slopes down to Girona Corredor and towards Pungpa La (purple round, 7390m) and Pungpa Ri (7486m). Girona's exit marked with the red arrow, it's 420m distance from Pungpa La (150m altitude difference). Collection: Simone Moro.



In his official reports on Internet, Steck mentioned having been up by the ridge, then down (at some point) by another route. Here follow his main reports just after the climb:

<http://www.alpinist.com/doc/web11s/newswire-steck-shishapangma>

“Steck maintained his speed up through steep rock and intermittent ice until he climbed to 7200m. He had already reached his acclimatization goal, but felt confident and wanted to continue. “I promised my wife not to do any solos anymore. But this is not really a solo,” he wrote. “In this area a roped party would not really belay. You would lose too much time and it is not really necessary. I thought I could do it, and I could already see the exit.”

*Steck gained a ridge and stashed most of his gear. He continued up the ridge to the summit, reaching the top at exactly noon. **The descent to the saddle was “pure horror,” Steck said. “Here on the north side lies hip-deep powder snow. I regretted not having taken the same route down as I climbed up.”** He continued down a couloir steep enough that he had to downclimb with his face to the snow.”*

<http://www.wengerna.com/success-on-shisha-pangma-4-21-2011>

“The wall became a bit steeper. The air got thinner, and the first sun rays reached me on the ridge. The channel also became narrower. I felt tired, but not too bad, and the hits of the ice ax were still precise.

Once I reached the ridge there was no wind, and the sun gave a warm feeling. The summit was still quite far from this point. So I decided to leave my equipment there. The number of kilos weren't much, but I knew it would be much less strenuous to climb without such a heavy burden. Meter after meter I gasped over the ridge until I reached the summit.

At exactly 11.40 am I reached the summit. I quickly looked around then started my descent. I still had a long way back, and I wanted to reach ABC again today. Meteotest sent me a warning on my satellite phone: “the jet stream has changed its direction, you have to be back before Monday midday. Storm and bad weather front”.

The descent to the saddle was pure horror. On the north side there was hip-deep powder snow. I regretted not having taken the same route down as I climbed up.

When I reached the saddle I could not believe my eyes: before going down, there was a channel of steep loosened rock. Then snow, ice and rock alternated with each other. The channel seemed as if it would never end. I had to rest, concentrate and then move on. I saw the glacier becoming a bit flatter in the lower end. Step after step I went further and further down the mountain.”

<http://www.himalayaspeed.com/2011/04/ueli-reports-on-shisha-pangma-ascend/>

*“The exit was okay, with a few rock sections. After I got to the Summit Ridge I left my pack. There was not much in there but a stove, goggles, some extra food, and half a container of liquid. I climbed the whole route in down pants and jacket. But the temperatures were quite nice. The Meteogram said it was minus 12 degrees Celsius at 8000 meters. Maybe it was around -20 in the night. The ridge was okay – not much snow. The wind blew all the snow away earlier, so I reached the main summit quite quickly. **Some of the traverse was a little scary because under the ridge on the Northside there was a lot a snow.**”*

Reading these reports, **I first understood that he went down from the top by another route.** But it seemed doubtful, since the final section from the col after peak C does indeed confound with the main plateau / snow slopes route, and then with the final ridge exit! Why – even how - trace a second route down, mostly in deep snow conditions through the plateau? By the way, why weren't the same conditions mentioned at all during the way up on the ridge when this was meant to be in dry conditions?

Then after a while with a better knowledge of the so called “ridge”, meant to be “quite a complicated ground”, **I came to the conclusion that he may have used the other descent route from the plateau itself**, knowing the snow slopes/crevassed glacier below the plateau. But it seemed doubtful that he would have chosen this variant, knowing he had used the proper ridge up in good conditions, that this glacier hasn't such a good reputation, and that he had to retrieve his bag at the deposit, (which was mentioned absolutely nowhere), and would have moreover needed some extra time in deep snow conditions.

The global lack of precision for this section left much questions unresolved until I went into the “8000+” account. Here the solution appeared in two short sentences (p233): “

Ziemlich schnell bin ich wieder bei meinem Rucksack. Das Absteigen in der eigenen Spur erweist sich als deutlich schneller als das mühsame Aufsteigen”.

Here one could literally understand he had been up and down quickly by the same ridge from the bag deposit on top of the Girona, then slowly down to the saddle from his bag deposit in dreadful snow conditions. Reading back the first official accounts on Internet, I could only discover later since it was almost impossible to understand it in the description, the **details of the descent from the top to the bag deposit being in fact completely swept under the carpet!** When mentioning “*I regretted not having taken the same route down as I climbed up*”, how could one guess that he was speaking about the Girona route and not about the proper ridge to the top without that detail, even more knowing the complex “ridge” configuration afterwards? I just wonder how many have ever understood his proper route taken high up there without having made all these links.

Despite this new definitive evidence about his itinerary, **the impression of vagueness/confusion wouldn't be much better offset through Steck's proper ridge description account.** Any UIAGM mountain guide is asked to describe precisely the route he presents for the exam, sometimes failing despite having really done it. **But here, as a professional, first ranked, worldwide mountaineer, how could he present such an elusive account of the final stage?** Here are the descriptions of the ridge given in the first official reports:

“The ridge was okay – not much snow. The wind blew all the snow away earlier, so I reached the main summit quite quickly “

“Once I reached the ridge there was no wind, and the sun gave a warm feeling. The summit was still quite far from this point. So I decided to leave my equipment there. The number of kilos weren't much, but I knew it would be much less strenuous to climb without such a heavy burden. Meter after meter I gasped over the ridge until I reached the summit. At exactly 11.40 am I reached the summit.”

“Steck gained a ridge and stashed most of his gear. He continued up the ridge to the summit, reaching the top at exactly noon.”

In his book:

“Meter für Meter keuche ich über den Grat, **quere, steige etwas starker an, dann wieder flacher**. Jetzt spüre ich langsam die Höhe, die Leichtigkeit vom Morgen ist verfliegen, eine gewisse Müdigkeit macht sich bemerkbar. Bis zum Hauptgipfel zieht sich der Grat ewig, er will und will nicht enden. Das Spüren geht recht gut, variiert aber stark, vielfach liegt der Schnee nur knöcheltief, aber Mulden sind hüfttief gefüllt. Es ist ziemlich genau 11.40 Uhr, als ich den erlösenden höchsten Punkt erreiche.”

“Quitter la glace pour la neige m'avait soulagé un moment...Mais déjà je regrette la glace, car l'épaisseur de neige, qui varie suivant les effets du vent, rend la progression difficile. [...] Mètre après mètre, haletant, **je traverse, remonte une pente puis de nouveau un replat**. La facilité de la matinée s'est envolée, et la fatigue est maintenant bien présente. Je ressens pleinement les effets de l'altitude. Cette arête qui mène au sommet principal n'en finit plus. Mais la trace, bien que très variable, est convenable. La plupart du temps, je m'enfonçe jusqu'aux chevilles, parfois jusqu'aux genoux et même, dans les creux, jusqu'en haut des cuisses. J'atteins finalement le sommet vers 11h40”.

Any child from ABC could describe the same thing based on any picture of the southwest face...And clearly, Steck never mentioned to me, **after 3 times questioning him by email and then orally in Kathmandu**, the ridge difficulties/characteristics in itself, with the various buttresses/sharpness of the proper ridge, the plateau to cross (crevassed or not?), the short shelf of the British route exit, then the sharp last ridge to the top...**None of these details would ever be quoted, not a single word**, Steck claimed a loss of memory about all these details, instead indicating that for him “it was all easy ground”...

In terms of comparison, read back what Steck can describe when speaking about his “*Khumbu express*” expedition in 2005. Here he didn't have a summit picture of his Cholatse solo, but his report speaks for itself: he's very able to describe a route that he has climbed, **so why not do the same thing here, for one of the most important ascents ever in his career?**

43/ A descriptive gap worsened by a statistical one

- Considering other teams' timings for the ridge part

Further doubt can only be added when comparing other teams' timings from various exit points on the summit ridge

- **Scott 1983**: main summit reached after 30 minutes from the route exit, central summit reached at 2pm. No time details about descent from top to saddle.
- **Groselj Bence 1989**: used the slopes and the plateau, not the ridge. Andrej Štremfelj on return of their new route with Pavle Kozjek during same expedition, needed 3h to go down from the top to the saddle.
- **Lorétan-Troillet-Kurtyka 1990**: their new route didn't use the right part of the south face. However their pace was 250m/h up to 6950 from 5950m rimaye, Then 86m/h up to the top. They went back down from top to the rimaye in 5h45 (357m/h).
- **Wielicki 1993** : Wielicki reached the summit ridge at about 7675m at 1h30pm, this after a 3h climb of the 250 like headwall (grade V, 75m/h in that section) and a start from the face (6075m) at midnight. **He reached the summit at 5pm, meaning 3h30 after he got on the summit ridge, from where he had to join the tracks already done by Bianchi and Pustelnik** 50 to 60m below the ridge (3h30 for 402/412m = **114 to 117 m/h**). He considered the ridge to be too complicated. Thus, Wielicki needed 17h from bottom to the summit, meaning: **114 m/h** for the whole route (1952m), 130m/h on the face, 75m/h for the headwall, then 114 to 117 m/h for the whole “summit ridge”, **his speed** logically decreasing **in the headwall then on the “summit ridge”** (despite he himself considers in his book about 14 8000ers to have kept a good pace on the ridge).
- **Bianchi Pustelnik**: used slopes and plateau. NO infos.
- **Figueras 1995 (FA Girona Corredor)**: also went down to the ridge and used the slopes (with seracs at 7700m) and reached the eastern top very late in deep snow conditions. “The following day we went up to the top side of the southeast ridge (approximately 7550 meters) where we put up a tent 50 meters below it. On September 24 we passed the **seracs** (approximately 7700 meters) and went up the **slopes** which led to the top. **We could only advance slowly, opening a deep pathway in the snow**. Surrounded by fog until 4 p.m. we arrived at what we believed was the top.”
- **Moro Morawski Winter 2004**: **From exit on summit ridge they used the ridge itself** and needed 3h30 until 3pm to reach 7700m (28 m/h) below Peak C, at beginning of the easier plateau section; here they said they would have needed 3 to 4 hours more to reach the summit. “At 11:30 a.m. Morawski stood on the ridge at 7,600m and a few minutes later was joined by Moro. **It turned out that the way to the summit wasn't as easy as they had been told. The simplest solution, going straight down to the big plateau ca 100 meters below on the north flank of the mountain, was impossible. The rope was too short and the plateau was cut off from the face by a crevasse some six or seven meters wide**. Instead they were forced to traverse the ridge to gain the plateau at 7,700m. **However, this took time**, and when they arrived it was already 3 p.m. It was too late to safely continue to the summit, which they felt was another three or four hours distant.”

- **Moro Morawski Winter 2005:** exited at 7350m on Pungpa La via Slovenian 1993 route (300m difficulties in UIAA grade III/IV). They started from 7h30/8h with the first rays of sun on 14.01.2005 to reach summit at 1h13pm, meaning after a **5h15 to 5h45 effort for 700m (133 m/h)**, this via the slopes and the plateau (exactly 677m in 5h13(5,21) or 5h43(5,71) => 129 or 118 m/h).
“What happened the next morning (January 14) was not a climb but a run to the summit. Without backpacks, harnesses, food, hot drinks, with nothing, and starved of oxygen, we isolated ourselves thinking about putting one foot after the other until we had reached the highest point of the mountain and of our dream. It was 1:13 p.m. when, with a dry throat and my lungs irritated by the cold, I shouted and cried out with joy for being up there, far from comfort and safety, at 8,027m!”
- **Spanish Vallejo/Inurrategui (2005/1996):** after exiting by the British route, 2h from exit to the top for Vallejo. “Descent to the saddle via the glacier quite tricky” said Inurrategui.
- **GMHM 2014:** 1h30 from Pea pod exit to the top...

Despite being indisputably one of the best & fastest climbers of his era, it's hard to believe that Steck could climb from the 7288m location in 2h25 to the top through the headwall, the ridge, the plateau then the last slopes/ridge, and then from the top straight down to 7100m by the British descent route in 2h40...clearly when comparing these stats with his other previous/later ones. Interviewed in May 2016 about the minimum timing required to climb from Girona exit to summit then back to Pungpa La, Simone Moro said: "under extremely favourable condition you'd need 4 hours or more, but something like 5 hours would be more probable and maybe even 5+ hours". Here the timing of Steck is 5h05 climbing from the crux beginning (7288m) to the top back to 7100m, far below Pungpa La...

- Considering the general profile of the route

The overall profile of the Steck routes combination on the face is quite homogeneous: 50/55° similar slopes from 6100m to approximately 7300m at the entrance of Girona Corredor, the proper exit being steeper, something looking like 60/65° in mixed ground (depending for conditions) with a rock buttress at the very end. However, Steck traversed twice; first from Girona's attack to British pea pod couloir entrance, and then back to Wielicki and Girona routes. This should have decreased his average speed here, despite being already faster than any previous teams (147m/h average => see at the end “Scenarios and assumptions”). **Steck said he never took more than 5minute rests on the way up** (a proper non-stop ascent).

The profile of the following ridge to the top is like 1,5km, with a first 500m section until “Peak C” properly on a ridge which isn't considered to be so easy, based on Wielicki and Moro's aforementioned comments, and that most of the expeditions didn't use it at all, either up or down. Then there is a 350m long plateau to cross (GMHM found it highly crevassed in 2014), some easy slopes to the shelf of the pea pod exit, then a new sharp ridge before reaching the top (average slope of the whole summit ridge is 17°).

Considering the whole route from the bottom of the face to the top, the combination of these profiles is anything but straight and regular, which would, by the way, be obviously more the case on the British route. By the way researchers tend to show that the ideal profile to make fastest chronos for runners during vertical kilometre races ranges from 20 to 35° steep slopes, with a nadir at about 30° (N.Giovanelli, A.L.Ortiz, K.Henninger, R.Kram, 2015). This range looks slightly steeper for mountaineering, with optimum slopes ranging from 30 to 50° with a nadir at c.40°. Here, even in excellent conditions all the way along, it's hard to find such an ideal profile to climb/walk fast except from the summit ridge itself? But with the crux?

- Considering the reported conditions of the route

Steck mentioned to me that the conditions were in **hard snow all the way along**. However, in his book “8000+”, these conditions were only mentioned from the beginning (p236, in the 55° first slopes) to the crux beginning, some 55/60° ice already appearing below 7288m (p239). Then ice, mixed ground and rock (slightly overhanging) in the 300m crux (p240-242).

*“Je dois viser la glace entre les rochers pour m'accrocher. Quelquefois, lors de la frappe, un : “Klong” résonne lorsque la lame percute la roche nue, à côté de la glace ou au travers de la couche de glace. Lorsqu'il n'y a plus de rocher, je place avec précaution la lame sur une prise ou dans une étroite fissure. Pas le temps de m'arrêter pour reprendre mon souffle. Je dois garder mon rythme et continuer à monter alternativement sur la glace et le rocher.
 L'escalade devient maintenant vraiment duraille! Je suis si concentré que j'en oublie le manque d'oxygène...Quelques pas verticaux, et même surplombants, me barrent le passage vers l'arête. Les trois cents derniers mètres sont techniquement très exigeants. Je grimpe maintenant sur une véritable falaise rocheuse, avec mes crampons et mes piolets attachés à mes mains revêtues d'épais gants en duvet”.*

Then from the ridge, various depths of snow (mainly up to the ankles, sometimes up to the knees, then in the holes up to the hips). How is it possible to double your speed in such steep climbing conditions, then in such non-optimum qualities of snow (ankle acceptable but not optimum already)?

*“Meter für Meter keuche ich über den Grat, **quere, steige etwas starker an, dann wieder flacher**. Jetzt spüre ich langsam die Höhe, die Leichtigkeit vom Morgen ist verflogen, eine gewisse Müdigkeit macht sich bemerkbar. Bis zum Hauptgipfel zieht sich der Grat ewig, er will und will nicht enden. Das Spurengeschäft geht recht gut, variiert aber stark, vielfach liegt der Schnee nur knöcheltief, aber Mulden sind hüfttief gefüllt. Es ist ziemlich genau 11.40 Uhr, als ich den erlösenden höchsten Punkt erreiche.”*

*“Quitter la glace pour la neige m'avait soulagé un moment...Mais déjà je regrette la glace, car l'épaisseur de neige, qui varie suivant les effets du vent, rend la progression difficile. [...] Mètre après mètre, haletant, **je traverse, remonte une pente puis de nouveau un replat**. La facilité de la matinée s'est envolée, et la fatigue est maintenant bien présente. Je ressens*

pleinement les effets de l'altitude. Cette arête qui mène au sommet principal n'en finit plus. Mais la trace, bien que très variable, est convenable. La plupart du temps, je m'enfoncé jusqu'aux chevilles, parfois jusqu'aux genoux et même, dans les creux, jusqu'en haut des cuisses. J'atteins finalement le sommet vers 11h40".

- **Considering Steck statistics**

During the final stages of his high altitude climbs on the 8000ers, Steck never went faster than:

In Autumn 2009, **112m/h** on Makalu's normal route (in deep snow conditions) (from 7300 to 8485 in 10h30)

In Spring 2011, **133m/h** on Cho Oyu's normal route (from 6850 to 8188m in 10h), broken trail but tired, straight after the Shisha (and sick, according to him in private email exchange ; Grobel's clients indeed observed him there in a very bad shape, and Steck considered the last stage to be "never-ending" in "8000+")

In Spring 2011, **254/167m/h** on his Everest attempt on the north side, normal route (from 7066 North Col to 7700m in 2,5h; from 7700m to 8700m in 6h), right after Cho Oyu, in excellent shape according to his own reports on Internet (similar speed – despite not reaching the top - as Kammerlander on the proper north ridge section).

In Spring 2012, **68 m/h** on Everest south side, normal route (waiting beside the head Sherpa team opening the route, loosing 40min to wait) (from 8000 to 8848 in 12h20),

In Autumn 2013, **180m/h** for the Annapurna headwall (Here also faster than anywhere else previously, here moreover through an extreme 500m high headwall, much more difficult than Girona's final section...or Everest Northern normal route!

In 2014, Shisha Pangma central: **124m/h** on the normal route (PD climb, acclimatized, in light style with 4 other climbers breaking trail in deep snow from 7300 to 7900m, in 4h50) (only Steck and Böhm started from BC for a full non-stop ascent. Average speed for them from BC to 7300m 1700m/9h30 =178m/h, broken trail but plateaus/profile of the route...)

Further comparison with Steck during lower peaks climbs/attempts:

In 2001, Pumori Ri: **36m/h** on the West face (TD climb, at very beginning of his career) (From C1 6186 to bivouac 6800m in 16h45)

In 2004, Ama Dablam: **276m/h** on the normal route (equipped D climb, without acclimatization) (from BC 4600m to summit 6814m in 8h)

In 2005, Tawoche: **327m/h** on the SE face (D+/TD- climb, perfectly acclimatized) (From 5020 to 6495m in 4h30)

In 2009, Makalu: **290m/h** on the West pillar (D climb, perfectly acclimatized but with a heavy bag) (From 5250m BC to 6700m in 5h)

In 2015, Nuptse: **213m/h** on south face British route (D climb, breaking trail with light bivy equipment) (from 5300 to 6900m, 1600m in 7h30).

On Shisha Pangma, Steck mentioned a ridge dried by wind, and that he went "*quite quickly*" to the summit (The ridge from Girona exit to the summit is 1,5km long - GEarth estimation). Why not, but **how to explain such a drastic speed change (by twice, >= 306 m/h) whereas for instance, Denis Urubko ran at a 298m/h average on G2 (slower at the end according to him), moreover on an almost perfectly equipped normal route?** Just being faster, even in the technical bits, and profiting from the best conditions all the way long? **Why not but then why such a drastic speed change, if conditions were excellent all the way along?** Considering now Wielicki's equivalent performance in 1993, Wielicki decreased his speed from 7675m to the summit whereas Steck seems to have doubled his speed!

Physiologically speaking, specialists haven't specifically studied climb rates without oxygen at such high altitude (Ref. Paul Robach, ENSA, Chamonix).

According to Robach, no proper *in situ* studies exist for himalayist's speed above 5500m; individual variability is huge, and an athlete like Steck may have been trained with dedicated programs which may have increased his capabilities with time. **Sadly, Steck never agreed to deliver any infos about his physio capabilities, for instance his simple VO2 max** (considered by him as "private", when Kilian Jornet puts it in front of his own official website), this to establish comparisons with other speed climbers...

As previously written, the fastest rate of an 8000er non-stop ascent without oxygen was 298m/h for Denis Urubko, recorded on Gasherbrum2 normal route back in 2001 (his speed having decreased with altitude according to him despite a continuous effort and energy). Other accounts above 7000m: Spanish Alberto Zerain reached 260m/h on K2 from C3 to C4 (7350m to 8000m), at the beginning of his summit push day. Urubko did 304m/h in 2014 on Kangch between 7650 and c.8170m, 300m/h on Dhaulagiri 1 normal route in 2007 (on a 300m section between 7100m and 7400m). Some other chronos around 250/300 m/h (including Kammerlander in 1996, Steck/Bowie in 2011 at 254mh) have equally been recorded on Everest North side normal route (from North Col 7066m to C3 at 7700m) and on South side normal route (Chad Kellogg during his 2013 speed attempt at around 285m/h above the south col to the "triangle face" - 7906m to c.8300m. Babu Chiri Sherpa in 2000 from 7906m to the Balcony at 258m/h. Pemba Dorji Sherpa made the proper fastest chronos so far with 387mh (2003, from 7200 to 7940m) and 555mh (2004, from 7620 to 7820m) during his Everest speed records in the "Lhotse face" (40°), in perfect conditions.

What all these fastest recorded timings have in common is that they were done on easy technical ground, on equipped/prepared routes, sometimes pulling on fixed ropes, and on slopes varying from 20 to 40° steep, with an apparent nadir at 40°. If such acceleration had happened for Steck on Shisha from the ridge itself, it could have seemed plausible, but including the crux? Considering the profile of the route and the conditions here, the intensity of his speed outclassing most of the fastest recorded speeds so far on easy prepared ground, it's quite a paradigm change! When I eventually asked him bluntly in Kathmandu, Steck just got angry: "If you don't believe me I don't care", and he didn't present any clear facts to explain it.

44/ A planned strategy?

If really accelerating, why say nothing about such a change in his rhythm at least afterwards instead of an ingenuous “*I went quite quickly to the top*”? Nothing told in any of his reports about such a change. Why? Real/false modesty?

Steck told me about **an earlier strategy, planned previous to this expedition, which was to save energy in the lowest part then accelerate with altitude and explode in the hardest ground, where he confirmed (in writing) that he could reach 250/350m/h in such average difficult ground above 7000m** (presenting it as a secret data). The problem is that even if 200-250m/h for the crux is considered plausible (in such mixed conditions with hard ice), it means 350-400m/h on the ridge would be at least necessary (in not such optimum conditions)... The fact being that also such theoretical speed up to 250/300 m/h above 7500m in D grade route ground was NEVER measured on any of his previous climbs or after Shisha on ground like this. Moreover there are no written traces anywhere of such strategy statement afterwards:

“Together we decided that Ueli would make an immediate trip up the lower British Route to get a feel for conditions and take advantage of the 30 hours of good weather before the storms arrived.” (Freddie Wilkinson, himalayasppeed.com)

“I just started to climb, but did not expect to go to the summit. I was just thinking that I am going out to check the conditions up to 7200 meters”.(Himalayaspeed.com)

“Rob and Don agreed that I should go for summit. I decided that I needed to take a look at the mountain at the 7000 meter point, then descend. That way, I would have additional acclimatization to aid with my breathing” (...) **“My strategy was to move as quickly as possible”** (Wengerna),

Considering “I was just thinking that I am going out to check the conditions up to 7200 meters”, the idea of the aforementioned strategy seems even more unlikely, knowing that he said that, both before (to defend himself from media pressure which is completely understandable) and after, in front of the camera (FOR WHAT REASON THEN, when all media pressure is off??). If it really was a planned strategy to accelerate, why not simply telling it instead afterwards? Then why also tell: “My strategy was to move as quickly as possible” in Wengerna?

Another point: when knowing already from 7000m that he wouldn't use the direct British route, **why not explode in speed directly from that stage, knowing any other route would be less direct?** Strictly no mention about such a strategy change at that stage of the climb.

On the contrary: *“Steck maintained his speed up through steep rock and intermittent ice until he climbed to 7200m”.* (Alpinist.com)

In the same way in his book “8000+”, Steck instead mentions that he feared the rock falls before sunrise hit the face (indeed not before 10am) and so he climbed as fast as possible for a while (p 230-231, see excerpts below) and then could maintain his speed through the headwall.

*“Mittlerweile bricht der neue Tag an, ich rechne mir aber noch ausreichend Zeit aus, um den Ausstieg zu erreichen, bevor die Sonne in die Wand scheint. Sobald die Sonne den Fels erwärmt, wird sicherlich auch hier der Steinschlag beginnen, also sollte ich keine unnötige zeit verstreichen lassen und schauen, dass ich auf den Grat komme. (...) **Ohne das Gefühl zu haben, ständig zu rennen, bin ich einfach nur immer in Bewegung**, dadurch ist mir gleichzeitig angenehm warm. (...) **Ich spüre eine gewisse Müdigkeit, aber nicht gravierend**. Noch fühle ich mich gut und klettere sehr kontrolliert.(...) Ich muss nicht anhalten, um zu verschnaufen, **ich kann mein Tempo halten**. Es geht aufwärts! Fels und Eis wechseln sich ab. **Das Klettern ist jetzt doch recht anspruchsvoll geworden, ich konzentriere mich so darauf, dass ich die dünne Luft vergesse (...)** Die Letzten 300 Höhenmeter sind technisch anspruchsvoll.*

Even if reasonably considering that he could go fast and even maintain his pace through the headwall, **there is no sign of doubling or more his speed** there or anywhere else.

- **In conclusion:**

Steck's account of the summit ridge part and route description with associated timing can only raise questions:

- If really accelerating from 7288m and that was a planned strategy, why not simply mention it in his reports afterwards?
- If really accelerating to such speed levels in such grounds, how to explain such a disparity with any of his previous/later ones?
- If conditions were to be in such exceptional hard snow all the way along, why isn't it confirmed in “8000+”?
- How to explain such a continuous increased pace for the whole ascent, including double his speed from 7288m through the hardest difficulties, the “quite difficult” ridge, then on descent through this hip deep snow traverse from Girona's exit to the saddle, and then tricky downclimbing at the beginning of a “never ending funnel”?! This with an increasing fatigue from below 7288m to the top, then in the “never-ending funnel” (read “8000+”)?!
- If he was able to produce detailed accounts for some of his ascents in the past, why not do same thing here, knowing it's one of his most important climbs in his career?

5/ Further questions

- A questioning summit proof

Steck mentioned to Andreas Kubin that he left his Sigg Bottle on top, whereas he mentioned in his official reports that he left his bag at the exit of the Girona Corredor:

“After I got to the Summit Ridge I left my pack. There was not much in there but a stove, goggles, some extra food, and half a container of liquid”. He may have had 2 containers, using one to drink on the last bit? Why not.

<http://www.ukclimbing.com/news/item.php?id=61915>

<http://g-tags.com/blogs/videos/9149397-speed-climber-ueli-steck-takes-on-shishapangma>

In his book “8000+”, Steck further mentions he was very thirsty at the top and needed, for that reason, to go back to the pack to drink something. This suggests that he didn’t carry any liquid from his stashed pack for what would seem like a short hike? Or he maybe carried an empty sigg bottle in his jacket that he deposited there?

*“Ich schaue mich kurz um und steige sofort wieder ab. Ich überlege nicht viel, **ich empfinde Durst und will möglichst schnell zu meinem Depot zurück, wo die Wasserflasche wartet.**” (p233)*

No mention of one Sigg bottle left on top...No one reported to have found it there since then.

- A questioning use of the GPS and role with Suunto

Steck used a “**Suunto Core**”, which didn’t have the GPS option and also couldn’t allow him to download the route altitude diagrams infos on private computers (Steck clearly explained to me that it could retain only 10 diagrams, and then the swatch would automatically delete older ones). For him, maybe, but what about the Suunto engineers? Couldn’t they access this older data? Anyway, this means that Steck had that swatch (why not have a picture of the screen showing Shisha’s summit altitude, like on Eiger for instance?), a GPS (which he used to locate his cache at the foot of the route), a sat phone (on which he received a weather forecast SMS at some stage of his climb) and a camera (whose single battery failed to withstand the “not very cold” night wrote Steck in “8000+”). What about the GPS model? What could he do with it? Same with the Sat Phone, which model was it (some models allow some GPS pointing)? Was it not possible to bring back any data with those 4 tools? Or give a phone call or send an sms from the top?

In 2013 on Annapurna 1 Steck would use the “**Suunto Ambity 2 S Graphite**”, which allows almost everything: GPS + altitude tracking, download on private computers. But no diagram would ever be presented officially. Steck’s naked wrists, when back onto the glacier the day after the climb, could initially suggest that he didn’t take it at all. But he may have put it in some upper place in his jacket or his bag...Also he had with him a Sat Phone (maybe left at the bivouac) and a camera (which he has lost at some stage).

During our meeting in Kathmandu, **Steck even told me that the GPS tracking wasn’t working at all, this already back in the Alps!** Next November 2015, it was obviously working, for his new Eiger record was measured with a meter precision.

=> What about Steck’s collaboration with Suunto : a proper one as a technical advisor (with a proper testing role), or just a brand ambassador (pure communication role)?

During a conference in New York in November 2014, <https://vimeo.com/112107837>, one can see from 26’24” to 26’32” an altitude tracking presentation from 5918m to 8027m. But the altitudes presented are completely wrong, at worse featuring the 7300m ridge at 7600m and the Girona exit at 7922m, all the summit ridge being presented almost with the same altitude!

=> If not having the possibility to download any data from his swatch back to 2011, how could he create such wrong data and then present it during this conference (and others I believe) with the Suunto name marked below it?

During the same conference, for the Annapurna 2013, he wouldn’t present such data, in fact corroborating his statement about not having used GPS tracking (when he could).

6/ Scenarios and assumptions

		Scenario A				Scenario B				Scenario C				
Difficulty of the climb	Time Range at 7250/7288/7300m	To the main summit (8027)			If + 100m accepted	To the Peak C and plateau (7700)			If + 100m accepted	To the top of Girona Corredor (7550)		If + 100m accepted	Status	
	9h15 / 10h	Altitude Range	Time	Speed (m/h)	Speed (m/h)	Altitude Range	Time	Speed (m/h)	Speed (m/h)	Altitude Range	Time	Speed (m/h)	Speed (m/h)	
Average difficulties	10h (Bowie*2 at 7300)	6100 to 7300 (1200)	1h10=>10h = 8h50 (8,83)	135	147	6100 to 7300 (1200)	1h10=>10h = 8h50 (8,83)	135	147	6100 to 7300 (1200)	1h10=>10h = 8h50 (8,83)	135	147	confirmed, witnessed
	10h (Bowie*2 at 7250)	6100 to 7250 (1150)	1h10=>10h = 8h50 (8,83)	130	141	6100 to 7250 (1150)	1h10=>10h = 8h50 (8,83)	130	141	6100 to 7250 (1150)	1h10=>10h = 8h50 (8,83)	130	141	
	(>= to) 9h15 <u>at 7288m</u>	6100 to 7288 (1188)	1h10=>9h15=8h05 (8,08)	147	159	6100 to 7288 (1183)	1h10=>9h15=8h05 (8,08)	147	159	6100 to 7288 (1183)	1h10=>9h15=8h05 (8,08)	147	159	
	9h15 (Steck at 7300)	6100 to 7300 (1200)	1h10=>9h15=8h05 (8,08)	148	160	6100 to 7300 (1200)	1h10=>9h15=8h05 (8,08)	148	160	6100 to 7300 (1200)	1h10=>9h15=8h05 (8,08)	148	160	
	9h15 (Steck at 7250)	6100 to 7250 (1150)	1h10=>9h15=8h05 (8,08)	142	154	6100 to 7250 (1150)	1h10=>9h15=8h05 (8,08)	142	154	6100 to 7250 (1150)	1h10=>9h15=8h05 (8,08)	142	154	
200m difficult section + 1,4 km ridge until summit (SCENARIO A)	10h (Bowie*2 from 7300)	7300 to 8027 (727)	10h=>11h40 = 1h40 (1,66)	437		7300 to 7795 (495)	1h40(1,66)	298		7300 to 7550 (250)	1h40(1,66)	150		unwitnessed
	10h (Bowie*2 from 7250)	7250 to 8027 (777)	10h=>11h40 = 1h40 (1,66)	468		7250 to 7795 (545)	1h40(1,66)	328		7250 to 7550 (350)	1h40(1,66)	210		
	(>= to) 9h15 at 7288m	7288 to 8027 (739)	9h15 => 11h40 = 2h25 (2,41)	>= 306		7288 to 7795 (507)	2h25(2,41)	>= 210		7288 to 7550 (262)	2h25(2,41)	>= 108		
	9h15 (Steck from 7300)	7300 to 8027 (727)	9h15 => 11h40 = 2h25 (2,41)	301		7300 to 7795 (495)	2h25(2,41)	205		7300 to 7550 (250)	2h25(2,41)	103		
	9h15 (Steck from 7250)	7250 to 8027 (777)	9h15 => 11h40 = 2h25 (2,41)	322		7250 to 7795 (545)	2h25(2,41)	226		7250 to 7550 (350)	2h25(2,41)	145		
traverse to the saddle + 300m difficult (grade III/IV) section under		8027 to 7100	2h40 (2,66)	338		7795 to 7100 (695)	2h40 (2,66)	261		7550 to 7100	2h40 (2,66)	169		
Average difficulties		7100 to 6000	2h20 (2,33)	472		7100 to 6000	2h20 (2,33)	472		7100 to 6000	2h20 (2,33)	472		confirmed, witnessed
		Ascent rythm drastically increasing (at least by 2) on the way up from 7250/7300m despite 200m headwall + 1,4 km ridge including plateau and on way down deep snow slopes to join saddle then technical downclimb				Ascent rythm notably increasing on the way up from 7300m despite headwall + 0,7 km ridge+ deep snow slopes to join saddle				The ascent get slower in the Girona's headwall , not so fast down for reaching Pungpa La (hip deep snow on 3-400m), then downclimbing the Pungpa La's headwall (technical diff)				

One has to note that this scenarios sheet do not include the duration of the pause at Girona's exit. The numbers presented here are thus **minimum** speeds. Example: if 9h15 pause at 7250m with a 10min pause at the Girona's exit, means a 345m/h speed on the section and not 322m/h.

"If 100m accepted" means Steck told me to have been a 100m up in the beginning of the British route (from the "crossroad" for the upper "pea pod" couloir), proposition that I inserted despite being mentioned strictly nowhere in his accounts:

"I climbed the first part on the British Route then I traversed into the Wielicki Route because of bad rockfall in the night, and I ended by exiting on the Spanish Route". (Himalayaspeed.com and UKclimb.com)

"I made my way to the traverse into the British route and looked at the altitude: 6800 meters. My minimal goal was 7000 meters. On the right hand side a wide snow channel was running along, but I had no idea where the channel ended. But with only 200 meters to climb, I figured I could climb it". (Wengerna)

"On the trail once again, Steck reached the bergschrund after 2.5 hours. He climbed a couloir of "perfect," 55-degree snow and traversed to the British Route. Witnessing rockfall at 6800m had Steck second-guessing the conditions. He said he wondered what would happen during the day since the face was already warm and loose at midnight. He continued up a channel of snow, hoping it would take him to his target altitude of 7000m". (Alpinist.com)

In fact, since mentioning that he stopped at 6800m (measured with altimeter) to guess the conditions in the British route upper couloir as well as due to stone fall, it has to be mentioned that this altitude is 200m lower than the approximately 6925m high crossroad of the British route upper couloir...Maybe the same question of altimeter imprecision?

No mention as well in "8000+" of having "lost" a hundred meters beginning to climb properly above the crossroad (for instance Erhard Loretan wrote it regarding his FA of Shisha in 1990)...

		AVERAGE RYTHM LOW PART		8,08	8,83
	7288m average	1188	147	134	
AVERAGE RYTHM HIGH PART (9h22 between 9h15 - 9h29)					2h18 = 2,3
		7250	7288	7300	
8027	IF SUMMIT	337	321	316	
7795	IF PEAK C	236	220	215	
7550	IF GIRONA EXIT	130	113	108	
TOTAL AVERAGE IF STOPPING AT GIRONA EXIT (1450m/10,5h) = 138 m/h					
Slightly faster than Loretan (135) without going to the top					
TOTAL AVERAGE IF STOPPING AT PEAK C (1695m/10,5h) = 161 m/h					
Faster than Loretan (135m/h) without going to the top and close from average time of 2016 (163m/h on same Girona)					
TOTAL AVERAGE IF STOPPING AT GIRONA EXIT (1927m/10,5h) = 183 m/h					
Faster than 2016 performance to the plateau (163m/h).					

- **Observations and assumptions**

Statistical conclusions of the table above could leave to believe that **Steck stopped his ascent at the Girona Corredor exit or at the PeakC/plateau area**. He may have warmed up there before going straight down to the saddle in the reportedly dreadful snow conditions, then the tricky downclimb beginning in the "never ending" funnel down to Pungpa La?

As it's impossible to be seen from the summit ridge once having reached it, maybe Steck believed he could invent whatever he wanted from that point? However, considering his ultimate best detailed account of having been up and down by the same proper ridge and not by the glacier slopes behind, **one has to notice that it looks strange that his ABC members couldn't watch him both of these times, since in this section, precisely between his bag deposit and Peak C, one should be able to watch him from ABC, at least intermittently?** Afterwards, from Peak C/plateau it's definitely impossible to be seen (GMHM cameraman could shoot the exit of the pea pod minutes after minutes and after that nothing from there to the top).

If comparing his confirmed speed below 7288m and considering the fact that he did at least two notable traverses in the face, **Steck is already faster** than any of the previous teams on the face (those which made it to the top, proven), and this without a full acclimatization and without knowing the route. **His average 138m/h** in comparison with 135m/h for Loretan/Troillet (on their own route in 1990 with Voytek Kurtyka), 122m/h for Chris Warner (British route in 2002) and 114 for Wielicki (on his own route in 1993) **all sounds reasonable: he's just faster, and even not via a straight route!** But as expressed before, the problem definitely occurs afterwards...Comparing his pace with Wielicki for instance, he would have been faster for the proper face, but in reasonable proportions. Afterwards, if accepting Steck's account to be true, Wielicki goes at 114 to 117m/h speed on the summit ridge (on trail already broken) whereas Steck goes 3 times faster (on a longer section, including Girona's crux!)

If considering Steck couldn't climb faster in the crux than lower in the face (147m/h) - due to the intrinsic crux difficulty (proper climbing in steeper ground and in proper mixed conditions), a further theoretical speed calculation can be done for the upper part:

Denivelation to the Girona exit from 7288m place = $7550-7288=262\text{m}$

Speed = 147m/h

Time for the crux = 1,78h = 1h46min

Meaning:

Time at the Girona exit = $9\text{h}15+1\text{h}46=11\text{h}01$

Remaining time to go the top = $11\text{h}40-11\text{h}01=39\text{min}$

Remaining denivelation = $8027-7550=477\text{m}$

Speed on the ridge = $477/0,65=733\text{m/h}$

Same calculation with slightly different altitudes (due to the approximation of altitude estimation for the 9h15 place and Girona's exit) roughly shows a minimum of 500m/h from the ridge...

Why possibly abandon the ascent at Girona's exit of further to Peak C? Maybe due to fatigue, not having fully acclimatized (with Cholatse's north face in the legs "only"...), perhaps with a beautiful speed climb already done (faster than anyone else previously for the sole face...), but most likely when seeing the rest of the route looking less interesting despite it still being long and committing above 7500m? The fact that he was completely alone up there, with the face already climbed, the possibility to invent a story is easy...

- **Conclusion:**

Steck didn't deliver much information about the final part of his climb in any of his first official reports on Internet or later in his book "8000+". Then when I asked him to do so, he ultimately conveyed an elusive behaviour. Maybe not an intrinsic genuine one (could be a form of modesty, natural lack of rigor?...) but in relation to the real problematic part of his account: how to double his pace from 7288m to the top, this through the highest technical difficulties of the route and then the ridge where afterwards no one could observe him? The numerous questions raised in this report, including the most prominent one, haven't met with any satisfying rational answers since.

ANNEX: Pushing the effort about the exact time of the picture

The key element of my reasoning could seem initially arbitrary, making the link between a vague picture's legend and a statement of timing given without altitude. I tried to discern the best time of the day for the summit picture by myself, which I expected to be between 9h15 and 10am, likely closer from 10am according to initial statement of CBA members (confirmed in videos). After having tested/compared 4 different models, I eventually relied on www.timeanddate.com ("Day and night world map") to estimate the sun course/angle during that day, and used GMHM data to compare it.

Sun course over Kathmandu - timeanddate.com

Kathmandu local time given here without manual set up

Ueli Steck	UELI's TRIO NEPALI TIME		
17.04.2011	Time (Np)	Sun Altitude (°)	Heading (°)
	5h38	0	78ENE
	8h15	33	96E
	8h19	35	97E
	8h30	37	98E
	8h45	40	100E
	8h49	41	101ESE
	8h51	42	101ESE
	8h56	43	102ESE
	9h	44	103ESE
	9h04	45	103ESE
	9h08	45	104ESE
	9h10/12	46	104ESE
	9h14	47	105ESE
	9h20	48	107ESE
	9h24	49	107ESE
	9h29	50	108ESE
	9h41	52	110ESE
	9h49	54	112ESE
	9h53	55	113ESE
	9h57	56	114ESE
	10h	56	114ESE
	10h04	57	116ESE
	10h08/10h1	58	117ESE
	10h18	60	120ESE
	10h45	65	130SE
	10h57	67	135SE
	11h20	70	148SSE
	12h03	(ZENITH) 73	181S
	18h29	0	282 WNW
	(+or-)2 minutes		

GMHM when 7300m snowy ridge becomes enlightened (10h45 Tibet time)

Steck at approx 7200m
Theoretical 50° average value for steepness of the wall in this area including Girona corredor.

Don Bowie² at 7283m

Theoretical 135° horizontal angle from which SW face becomes enlightened

GMHM	GMHM USED TIBETAN TIME		
13.05.2014	Time (Np)	Sun Altitude (°)	Heading (°)
	5h16	0	69ENE
	8h04	35	86E
	8h12	37	87E
	8h23	40	89E
	8h30	41	89E
	8h35	42	90E
	8h39	43	90E
	8h43-45	44	91E
	8h47	45	91E
	8h51	46	92E
	8h56	47	92E
	9h02	48	93E
	9h10	50	94E
	9h31	55	97E
	9h35	56	98E
	9h41	57	99E
	9h45	58	99E
	9h49	59	100E
	9h51	59	101E
	9h55	60	101E
	10h18	65	106ESE
	10h32	68	108 ESE
	10h41	70	113ESE
	10h45	70	115ESE
	11h07	75	124SE
	11h22	77	135SE
	11h45	80	159SSE
	12h03	(ZENITH) 81	184S
	18h44	0	291WNW
	(+or-)2 minutes		

This table shows that **sun vertical angle for GMHM was 41°** in May at 10h45 (8h30 Nepali time) when the ridge left of Steck picture was just starting to be lit (obviously it's already quite more lit on Steck's picture).

Following GMHM pictures set taken on 13.05.2014 at (Tibetan times) 10h32am (no light in Steck's area), 10h35am (beginning of the ridge enlightenment) and 11h44am (fully illuminated face)







Despite correction due to slightly different sun courses between both dates, for the 17.04.2011 a 41° minimum angle would correspond to a minimum 8h50am chrono. So 9h15 chrono corresponding to a 47° vertical angle or even 10am to a 56° angle are both possible timings for Steck on this picture at 7288m.

In absence of Frost/Bowie's cooperation on this, it's hard to give a final word about the exact time.

However, comparing Steck's picture below in a wider frame with the 9h29am (11h44 transferred into Nepali time) zoomed picture of GMHM, despite the corrections due to horizontal angle, it seems that the Steck picture would have been taken before. **So eventually the 9h15 timing seems to match plenty!**

Knowing Frost Bowie Time statement to be excluded and Steck was climbing after his 9h15/7200m pause, now the logical time range would be more like 9h15 – 9h29 to retain for the 7288m location.

Having said that, it's quite likely that the 7200m pause of Steck could precisely lie somewhat nearby the ridge where he arrives from his left, like 50m left of it at the same altitude (if coming from the Wielicki as read in his reports). Or a bit below at the particular bend drawn by Steck in his accounts, from which he could obviously have a better overview of the upper face.



Why having twice stated officially “about 10” when it was really 9h15? Hard to say and not really logical...

The official website for the full **2011 expedition** (including Cholatse, Shisha Pangma, Cho Oyu and Everest) with first official reports about Shisha is to be found here:

<http://www.himalayaspeed.com>

<http://www.himalayaspeed.com/2011/04/shisha-speed-more-details-about-ueli%E2%80%99s-ascent/#more-93>

<http://www.himalayaspeed.com/2011/04/ueli-reports-on-shisha-pangma-ascent/>

Others websites with interviews and reports about Shisha Pangma:

<http://www.wengerna.com/success-on-shisha-pangma-4-21-2011>

<http://www.alpinist.com/doc/web11s/newswire-steck-shishapangma>

<http://www.planetmountain.com/english/News/shownews1.lasso?keyid=38082>

<http://www.ukclimbing.com/news/item.php?id=61915>

<http://g-tags.com/blogs/videos/9149397-speed-climber-ueli-steck-takes-on-shishapangma>

The ascent is further described in the book:

“8000+ - *Aufbruch in die Todeszone*”, mit Karin Steinbach, September 2014 (page 197 to 240).

“*Speed*”, Editions Guérin, Chamonix, 2014 (short mention in introduction).

The websites for **sun course simulation**:

www.timeanddate.com

www.sunearthtools.com

www.googleearth.com

References for **physiology of effort in high altitude**:

“*Maximal and Submaximal Exercise Performance at Altitude*”, Charles S. Fulco, ASEM, August 1998.

“*Médecine de l'alpinisme et des sports de montagne*”, J.P. Richalet & J.P.Herry, Masson, 2006.

« *Physiologie und Medizin der grossen und extremen Höhen. Höhentrekking und Höhenbergsteigen* », F.Berghold & W.Schaffert, 2010.

References for **vertical kilometre foot races**:

« *Energetics of vertical kilometer foot races ; is steeper cheaper ?* », N.Giovanelli, A.L.Ortiz, K.Henninger, R.Kram, Journal of Applied Physiology, November 2015.

« *Le kilomètre vertical : approche générale et biomécanique* », P.Balducci et F.Gautheron. [HTTP://WWW.SKIANDRUN.FR/INDEX.PHP/PORTAITS/1078-LE-KILOMETRE-VERTICAL](http://www.skiandrun.fr/index.php/portaits/1078-le-kilometre-vertical)