

# Space Elevator Transportation System

## Architecture Note #22

### Robots and the Space Elevator

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## Personal Prolog

This is an Architecture Note. It is the opinion of ISEC's Chief Architect. It represents an effort to document ISEC's ongoing science and engineering discussions and is one of many to be published over time. Most importantly, it is a sincere effort to be the diary, or the chronicle, of the multitude of our technical considerations as we progress; along the pathway developing the Space Elevator.

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## Background

By late October 2018, our story was out. There will be a Space Elevator Transportation System. The ISEC position that ...” the Space Elevator is closer than you think” ... isn't argued so much. It is inevitable, ... there will be a Space Elevator. It will shepherd us into the last half of this century and on to interplanetary travel. We will be watching, closely.

## Watching the Space Elevator arrive

As usual, I was thinking about the coming dawn ... the Space Elevator is coming; watch for it. The recent spate of stories has caused some to take notice; the stories are in techy news for the most part. So, the doubt is being erased. The expectations are growing. The Elevator will be here; ... sooner than you might think. However, the story has an invisible element; who is driving? Who are the elevator operators? Even elevators in tall buildings had operators. That was before ...

Recently, I was sitting at my favorite happy hour spot, waiting for my good friend to arrive. I have been meeting Paul every month for nearly 30 years. We rarely cancel. He slid onto the bar stool easily; he is well practiced. “How's it going?” he asked; as always. My answer was a little different. “The Space Elevator is going to happen – without a doubt”. Paul, ever the smart ass I have known for nearly 50 years, said; “Great, whose doing your elevator music?” I smiled at my friend and tried to match his humor; “No music, robots have no sense of melody”.

## A new kind of arrival

That is correct. The first Space Elevator will be operated by robots; or more correctly, operated remotely and robotically. But, it will be different; different from the revolutionary aerospace achievements that preceded it.

Do you think we all would remember a robot on the moon reciting "... a giant leap for mankind"? Imagine if a tall, skinny robot had climbed out of the "Spirit of St. Louis" after landing in Paris. Do you figure a ticker tape parade would have followed? Do you figure we would hail the pilot had the "Right Stuff" for breaking sound barrier; if Chuck Yeager was a robot? Yet each of those were monumental accomplishments. The first successful trip on the Space Elevator will stand with those three; as a monumental accomplishment. But all it will earn is a little more barstool humor.

My friend Paul smiled; not so much at my humor but rather at the realistic irony of it all. Paul has been around for a while; and holds a few unregistered records from his time in the space business. In the 1960's, he worked at Space Launch Complex #3 at Vandenberg AFB in California. We called it "Slick 3"; and it had a certain ring to it. It was a busy place in the '60's. In one 52-week period, 26 launches departed from Slick 2 & 3. Paul tells of the hustle & bustle of his team getting those important payloads to orbit. It was a human story.

The Slick 3 performance – in retrospect was remarkable. But - it is noted here – from those critical moments at launch until mission success and de-orbit it was operated remotely and robotically. So will it be with the Space Elevator. Humans will slide the payload into the Climber, conduct final safety checks: and off it will go -- operated remotely and robotically. What would you expect? The Space Elevator is the basis for safe, reliable, routine, environmentally clean access to space. It is a job made for robots.

## The Galactic Harbour is not alone

Some will accuse me of understating the role of humans will need to play. Nope. Take a close look at the re-invention of the U. S. retail marketplace; Amazon and their distribution centers. A few proper clicks on your home computer and everything from books to bathroom products show up at your front door; operated remotely and robotically (almost). When Mr. Bezos gets last step of distribution by drones and/or driverless trucks sorted

out; the entire cycle will be - operated remotely and robotically, and by the customer! He'll do it using AI technology like the type we will use. My hope and vision is similar to Amazon and FedEx; a transportation system servicing the customers safely and reliably.

In a sense then we are not really changing anything. Our launch moment will be quieter, our passage to an operating location will be slower but less stressful, and we will leave no chemicals or debris in our wake. We will be doing so without fanfare; remotely and robotically.

In closing

I'll ask my friend Paul for more insights.

*Fitzer*