

**From:** Mike Pearlman <[mpearlman@cfa.harvard.edu](mailto:mpearlman@cfa.harvard.edu)>  
**Date:** Monday, November 20, 2017 at 12:02 PM  
**To:** David Arnold <[david-arnold@earthlink.net](mailto:david-arnold@earthlink.net)>  
**Subject:** Re: Present subcontract - My mistake

Dave,

You have some good guys working with you.

As far as funding goes, I had to fight hard to get what we got.

Have a nice Thanksgivings.

Mike

On Mon, Nov 20, 2017 at 11:36 AM, David Arnold <[david-arnold@earthlink.net](mailto:david-arnold@earthlink.net)> wrote:  
Mike,

I added the salary and travel separately. I missed the travel part of invoice #1 (salary \$3,000.00 + travel \$1,695.29 = \$4,695.29).

The workload over the past year has been beyond available funding. The goal of one millimeter accuracy has raised issues people were not concerned about in the past. Reinhart has been helping a lot with these issues. Ludwig who is now retired has been critical to many aspects of these issues.

Best,

David Arnold

**From:** Sue Hamelin <[sdemski-hamelin@cfa.harvard.edu](mailto:sdemski-hamelin@cfa.harvard.edu)>  
**Date:** Monday, November 20, 2017 at 9:19 AM  
**To:** Mike Pearlman <[mpearlman@cfa.harvard.edu](mailto:mpearlman@cfa.harvard.edu)>  
**Cc:** "Arnold, David" <[david-arnold@earthlink.net](mailto:david-arnold@earthlink.net)>, Joe Lendall <[jlendall@cfa.harvard.edu](mailto:jlendall@cfa.harvard.edu)>, Sue Hamelin <[sdemski-hamelin@cfa.harvard.edu](mailto:sdemski-hamelin@cfa.harvard.edu)>  
**Subject:** Re: Present subcontract

Hi Mike,

There's only \$4,635.79 remaining (see attached). I'll have to do a change order to add \$1,695.29 to the PO. I'll email the req to FM & Joe Lendall and ask them to expedite the change. I'm only in the office today and tomorrow.

Best,

Sue

On Fri, Nov 17, 2017 at 1:15 PM, Pearlman, Michael R. (Mike) <[mpearlman@cfa.harvard.edu](mailto:mpearlman@cfa.harvard.edu)> wrote:

Sue,

Is there enough money in the subcontract to cover this? If not, add the funds required.

Dave will send in his invoice.

Thanks Mike

----- Forwarded message -----

From: **David Arnold** <[david-arnold@earthlink.net](mailto:david-arnold@earthlink.net)>

Date: Fri, Nov 17, 2017 at 12:35 PM

Subject: Re: Present subcontract

To: "Pearlman, Michael R. (Mike)" <[mpearlman@cfa.harvard.edu](mailto:mpearlman@cfa.harvard.edu)>

Hi Mike,

Sorry to be late with the final invoice. I had to work – hope that is a good excuse. I need to add the receipts and send it in.

The total allocation for the 3 year contract is \$48,000 including the recent addition of \$3,000.00 – thanks.

Subtracting all the invoices gives a remainder of \$6,331.08.

I will send in an invoice for the remainder to clear the books.

\$1810.55 Travel for Riga, Latvia

\$4,520.53 Services

\$6331.08. Total invoice.

**The work load has been well above the available funding.** But it needs to be done and I enjoy the work. **The Italians are processing a payment of \$5,000 for work on the design of Lares-2.** Yesterday we were designing a new design for the mount 1.0 inch cubes including tabs for holding the cube without touching the reflecting surfaces. The design is simple and satisfies the current requirements for precise positioning of the cubes.

Reinhart, Hose Rodriquez, and I are working to develop the correlation method for computing normal points. It is insensitive to noise and eliminates the data clipping problem. The plan is to test the method at Potsdam and Herstmonceux.

There is a difference of a few millimeters between the observed range corrections for Lageos 1 and Lageos 2. The difference is not surprising considering all the known problems with the 1.5 inch cubes. Analysis of histograms of the two satellites using the correlation method should help to quantify the difference.

Best,

David Arnold

**From:** Mike Pearlman <[mpearlman@cfa.harvard.edu](mailto:mpearlman@cfa.harvard.edu)>  
**Date:** Sunday, October 15, 2017 at 8:02 AM  
**To:** "Arnold, David" <[david-arnold@earthlink.net](mailto:david-arnold@earthlink.net)>  
**Subject:** Present subcontract

David,

It was good to see you in Riga. Nice job.

My present contract has been extended through 30 November. Send in your bill by the 15 November. There there will be no carry over so we would like to clear the books by the end of the month. We may not hear on the new grant until the last minute, but everything sounds good.

Take care,

Mike

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