

ESF - Short Visit Grant - Acceptance

In Confidence

This form must be signed and returned to the ESF.

APPLICATION DATA

SHORT VISIT GRANT

Reference Number : **3558**
Acceptance submitted : **29/06/2010 22:52:59**

ESF ACTIVITY

Unit(s) : **PESC**
Activity Title : **Gaia Research for European Astronomy Training**
Activity Acronym : **GREAT**

PROJECT

Title of the proposed research project : Preparation to the thermophysical modeling of Gaia and WISE observations
Date of visit (starting date) : 20/07/2010
Duration : 14 day(s)
Applicant's Name : Miss Kelsey Hargrove, Orlando, United States

HOST INSTITUTE(s)

Dr. Marco Delbo, Nice, France

BUDGET GRANTED

TOTAL MAXIMUM ESF FUNDING : 1690 €

ACCEPTANCE


I intend to avail myself of the funds awarded to me : **Yes**

I certify that I will be using the money received for the purpose for which the funds have been awarded : **Yes**

I acknowledge having read the ESF Guidelines* carefully and I confirm that I adhere to them : **Yes**

* sent to you as an attachment with the letter informing you of awarding of grant

Date: 10-15-11

Applicant's signature: 

Thermal Properties of Inner Belt Asteroids observed by WISE

Hargrove, K. (1), Delbo, M. (2)
(1) University of Central Florida, USA,
(2) Laboratoire Cassiopée, Observatoire de la Côte d'Azur

Purpose of Visit

My research involves characterizing surface composition and thermal properties of asteroids in the main belt. Marco Delbo is an expert on the thermal modeling of solar system bodies and my visit combined his expertise with my background in thermal modeling, photometry and data reduction.

In particular we focused on Nasa's Wide-Field Infrared Survey Explorer (WISE) database of asteroids. Having observed over 100,000 asteroids, the data gathered by WISE provides us with an exciting opportunity to study large asteroid populations and families. The asteroid thermal properties derived from WISE data in combination with the data that the Gaia mission will provide in likely 23 years from now will enhance our understanding of the physical properties of these bodies.

Our project is thus a preparation for the scientific exploitation of Gaia data, outside of the Data Processing and Analysis Consortium (DPAC). This is "proof of concept" of asteroid photometric data modeling obtained by Gaia in combination with observations from the NASA space mission WISE in the thermal infrared.

Project Description & Results

During my two-week stay, from September 15th to the 28th, we wrote routines to reduce the data for over 6,000 asteroids. We then used the magnitudes derived from this reduction to fit a modified version of the Near-Earth Asteroid Thermal Model (NEATM) [1].

This work resulted in the diameter, albedo and eta values for 6,051 asteroids in the

inner regions of the asteroid belt ($a < 2.5$). This study is important for comparison against the results published by the WISE science team. Despite using a smaller sample size, our results differ from that seen in Masiero 2011 [2]. We find a higher population of primitive objects with albedo < 0.1 .

Future Collaborations

Future collaborations with Marco Delbo will include a more exhaustive comparison of our results to the WISE team using the entire population of the asteroid belt. Also we propose a more diagnostic study of primitive background objects in the inner main belt to constrain the parent body for the carbonaceous chondrite meteorites and the fascinating meteorite Almahata sita.

Acknowledgements

I would like to sincerely thank the European Science Foundation for providing me with the funds necessary for this amazing opportunity, and Marco Delbo for hosting me during my stay. I would also like to recognize Catherine Werner for all her kind help and support during the initial planning stages of this trip.

References

- [1] Harris, A. W. 1998, Icarus, 131, 291
- [2] [arXiv:1109.4096v1](https://arxiv.org/abs/1109.4096v1) [astro-ph.EP]

From: AirFrance <info@service.airfrance.com>
Subject: Confirmation of your Air France booking
Date: July 8, 2011 9:37:45 PM GMT+02:00
To: khargrove@knights.ucf.edu



You have just made a reservation on airfrance.us. Thank you.

You can go to **manage your reservations** on our website at any time to see your reservation details and find useful information to help your trip go as smoothly as possible.

We also invite you to check the entry procedures for your destination country or transfer country if you have any connections.

See you soon on our site.

www.airfrance.com/us

Your reservation reference number: 59U2HP Reservation status: **Confirmed**

Your reservation was created on Friday, July 8, 2011

Your travel

Your flight : Orlando - Paris

Tuesday, September 13, 2011

AF693 - Voyageur **8:45 PM** Orlando, Orlando Intl (MCO), United States of America - Terminal

Last check in time :

11:10 AM Paris, Charles de Gaulle (CDG), FRANCE

Operated by : Air France

Aircraft : Boeing 777-300ER

Meal(s) served on board :

Class : T

Duration : 08h25, non-stop

Meal Breakfast

Allowance : 1 baggage

Your flight : Paris - Nice

Wednesday, September 14, 2011

AF7706 - Voyageur **3:50 PM** Paris, Charles de Gaulle (CDG), FRANCE - Terminal 2F

Last check in time : 3:20 PM

5:20 PM Nice, Côte d'Azur (NCE), FRANCE

Operated by : Air France

Aircraft : Airbus A320

Meal(s) served on board :

Class : L

Duration : 01h30, non-stop

Information not available

Allowance : 1 baggage

Your flight : Nice - Paris

Wednesday, September 28, 2011

AF7715 - Voyageur **3:55 PM** Nice, Côte d'Azur (NCE), FRANCE - Terminal 2

Last check in time : 3:25 PM

5:30 PM Paris, Charles de Gaulle (CDG), FRANCE

Operated by : Air France

Aircraft : Airbus A320

Meal(s) served on board :

Class : L

Duration : 01h35, non-stop

Information not available

Allowance : 1 baggage

Your flight : Paris - Orlando

Saturday, October 8, 2011

AF694 - Voyageur **1:45 PM** **Paris**, Charles de Gaulle (CDG), FRANCE - Terminal 2E
 Last check in time : 12:45 PM
5:05 PM **Orlando**, Orlando Intl (MCO), United States of America

| | | |
|--------------------------|-----------------------------|-----------------------------------------|
| Operated by : Air France | Aircraft : Boeing 777-300ER | Meal(s) served on board : Meal Snack |
| Class : T | Duration : 09h20, non-stop | Allowance : 1 baggage |

If you would like to take baggage which exceeds the specified limit, you must pay a supplementary charge when checking in.
 To find out the status of your requests or change your preferences, go on **our website** at any time and visit the Your Reservations section.

Payment

| | |
|------------------------|---------------------|
| Fare excluding taxes : | 1,245.00 USD |
| Taxes and surcharges : | 195.13 USD |
| Service charge : | 0.00 USD |

Total amount paid online 1,440.13 USD

You have paid this amount via **VISA card**

Passenger

Kelsey Dene Hargrove

ticket number : **0572309577929**

You could earn **2758 miles** on this trip if you joined our Flying Blue loyalty program. To join, go on **our website!**

Fare conditions

i The fare is only valid if the ticket is used in the sequential order of the flight coupons.

Identification documents

Preferences

| Kelsey Dene Hargrove | Meal | Status | N°seat | Status |
|-----------------------------|-----------------------|------------------|---------------|---------------|
| ORL - PAR | Vegetarian Hindu meal | Confirmed | - (Seat Plus) | - |
| PAR - NCE | No Preferences | - | - (Seat Plus) | - |
| NCE - PAR | No Preferences | - | - (Seat Plus) | - |
| PAR - ORL | Vegetarian Hindu meal | Confirmed | - (Seat Plus) | - |

i Please note that confirmed seat and/or meal requests may not be fulfilled if it is uncertain that they will be used.

In some cases, request for seat and / or meals may take more time. To check the status of your requests or change your preferences for seats and meals, please consult your file in "**Manage your reservations**" on our website with your booking reference.