



## CENTRE FOR EARTH SCIENCE STUDIES

P.B. No. 7250, Akkulam  
Trivandrum 695 031  
Kerala, INDIA  
Tel.: +91-471 2445803  
Fax: +91-471 2442280

C.P. Rajendran  
Scientist

October 15, 2004

Dear Dr. Ravi Prasad:

Enclosed please find 6 samples (calcareous) obtained from Car Nicobar. The samples IDs are the following.

S.No	Sample Name	Location	Wt: (approx)
1.	PB/MUN/1	<i>Mumela Phor</i> Missilapattar, Port Blair	100.3 gms — <i>less than 1000 yr</i>
2.	CN/TC/1	Keating Point Cliff, Car Nicobar	30.80 gms → <i>~4000-10000</i>
3.	CN/SA/1	Sawai, Car Nicobar	80.59 gms → <i>5000-20000</i>
4.	CN/SW/1	South Westernside, Car Nicobar	135 gms — <i>&lt; 5000</i>
5.	CN/MA/1	Malacca, Car Nicobar	96 gms } <i>&lt; 1000 yr</i>
6.	CN/MA/2	Malacca, Car Nicobar	151 gms }

I would very appreciate if you can date these samples using your AMS facility, at the earliest.

Thanking you

Yours sincerely

C.P. Rajendran

To

Dr. G.V. Ravi Prasad  
Institute of Physics  
Bhubaneswar 751 005  
Orissa

Date: Mon, 28 Mar 2005 17:31:34 +0530 (IST)  
 From: IOP-AMS <ams@iopb.res.in>  
 Subject: Re: AMS  
 To: cp\_r@vsnl.com  
 X-Mailer: SquirrelMail (version 1.0.6)  
 X-imss-version: 2.023  
 X-imss-result: Passed  
 X-imss-scores: Clean:99.90000 C:2 M:3 S:5 R:5  
 X-imss-settings: Baseline:1 C:3 M:3 S:3 R:3 (0.0000 0.0000)  
 Original-recipient: rfc822;cp\_r@vsnl.com

Dear Dr. Rajendran,

As Dr. Rajagopalan was away since Sep'04 and returned in Mid-January, sample preparation process got delayed. We have tried three of your samples recently and the results are below.

The half-life is 5568 yrs and the ages are in Radiocarbon years.

CN/SW/1	2750 +- 110
CN/TC/1	4898 +- 130
CN/SA/1	36800 +- 900

*SW ender c/n*  
*Keating Point c/n.*  
*c/n, Sawai*

*B/SIP*  
 2750 ± 110  
 5420 ± 80  
 35910 ± 1040

We have already loaded the other three samples for AMS dating. We will take the run in the first week of April and let you know the results.

As I wanted to send all the results together, I haven't contacted you. Please send your comments.

With regards,  
 Ravi Prasad

*CN/TC/2 Keating point*  
*CN/SW/1 - Sawai*  
*CN/SA/1 - Sawai*

Dr. G. V. Ravi Prasad  
 Institute of Physics,  
 Bhubaneswar-751005, Orissa

Tel : 0674-2301058 extn: 225  
 Fax : 0674-2300142

Bhubaneswar  
AMS - dating.

Dear Dr. Rajendran,

We have measured the remaining three samples you have sent earlier. The data show that all these three are 'modern', as you may see below.

Sample	Fm (fraction modern)	Error
CN/MA/1	1.087	+ - 0.0128 ( 1.2 %)
PB/MUN/1	1.12	+ - 0.014 ( 1.25%)
CN/MA/2	1.078	+ - 0.015 ( 1.4%)

We tried these samples in April'05 also. As they turned out to be modern, we attempted again in May'05 to confirm. We have also made some improvements to the facility before running these samples.

Please send your comments on the data.

We wish to have a joint publication of the data with you as it gives recognition to this AMS facility.

Please let us know if this data can lead to a publication.

Thank you.

with regards,  
Ravi Prasad.

May 23, 2005

(7)

June 2, 2005

Dear Dr. Ravi Prasad:

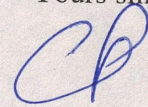
Please recall our email correspondence. I am sending you two more samples, of Shelly material from the Andaman region for AMS dating. Following are the sample numbers.

1. HB/L2/CP  $3286 \pm 100$  years
2. HB/L1/CP  $1042 \pm 90$  years

L2 - higher level  
L1 - lower level.

Kindly acknowledge.

Yours sincerely



C.P. Rajendran

To

Dr. G.V. Ravi Prasad  
Institute of Physics  
Bhubaneswar 751 005  
Orissa

(T)

Little Melama dates,

Date: Mon, 01 Aug 2005 12:28:23 +0530 (IST)  
From: IOP-AMS <ams@iopb.res.in>  
Subject: AMS dates  
To: cp\_r@vsnl.com

Hut Bay

Dear Dr. Rajendran,

The AMS dates we have obtained are below.  
These are radiocarbon ages (B.P). Half-life : 5568 yrs

HB/L1/CP : 1042 +- 90 years  
HB/L2/CP : 3286 +- 100 years

regards,  
Ravi Prasad

--

Dr. G. V. Ravi Prasad  
Institute of Physics,  
Bhubaneswar-751005, Orissa

Tel : 0674-2301058 extn: 225  
Fax : 0674-2300142

Date: Sun, 28 Aug 2005 07:30:17 +0530 (IST)  
From: IOP-AMS <ams@iopb.res.in>  
Subject: Re: hello  
To: cp\_r@vsnl.com  
X-Mailer: SquirrelMail (version 1.0.6)  
X-imss-version: 2.030  
X-imss-result: Passed  
X-imss-scores: Clean:40.54316 C:2 M:3 S:5 R:5  
X-imss-settings: Baseline:1 C:3 M:3 S:3 R:3 (0.0000 0.0000)  
Original-recipient: rfc822;cp\_r@vsnl.com

Dear Dr. Rajendran,

Nice to hear that you have more samples now. Next week I am planning to attend the AMS-10 conference in Berkeley and then will spend about a month in the AMS facility at the University of Arizona.

After my return in end of October, we will resume the AMS runs.

Meanwhile, pre-processing and graphite preparation can be done.

Please find the attached sample submission form.

Please send the samples along with the filled forms and a one page proposal (required for the AMS activity report).

best regards,  
Ravi Prasad

> Dear Dr. Raviprasad,

>

> I am back from Andamans (with more samples, of course). I need your  
> help to date them. These samples are important because we will be able to  
> bring the story to a logical conclusion, which will have a lot of  
> implications in understanding the recurrence pattern of great  
> earthquakes along the Andaman subduction zone. I have about 15 samples  
> (calcareous). Would you be able to help me to do this on a priority  
> basis?

>

> CP Rajendran

>

> Homepage: <http://cp.seires.net>

> C.P. Rajendran

> Centre for Earth Science Studies

> P.B.No.7250, Akkulam

> Trivandrum 695 031, India

> Ph : 91-471-2445803(O); 91-471-2360942 (Res)

> Fax : 91-471-2442280

>

>

> -

> Internal Virus Database is out-of-date.

file://C:\DOCUME~1\cp\LOCALS~1\Temp\eud57.htm

8/30/2005

> Checked by AVG Anti-Virus.  
> Version: 7.0.289 / Virus Database: 267.9.7 - Release Date: 7/28/2005

—  
Dr. G. V. Ravi Prasad  
Institute of Physics,  
Bhubaneswar-751005, Orissa

Tel : 0674-2301058 extn: 225  
Fax : 0674-2300142



[AMS Sample submission form.doc](#)

Internal Virus Database is out-of-date.  
Checked by AVG Anti-Virus.  
Version: 7.0.289 / Virus Database: 267.9.7 - Release Date: 7/28/2005

mailed on 19/9/2005

*Shubanshu*

Details of Sample ID (Mailed to Institute of Physics, Lucknow)

1.	RG/Shell/D
2.	IN/St/D
3.	T3/IN/D/P1/D
4.	IN/TOP/B ✓
5.	T2/IN/D/P1/B
6.	T2(A)/HUT/D/P1
7.	T2(B)/HUT/D/P3 ✓
8.	T1/HUT/D/P1 ✓
9.	T2(B)HUT/D/P4
10.	T3/Har/HUT ✓
11.	T2/HUT/D/P5
12.	AV/PD/LT/1
13.	AV/T1/A
14.	AV/T1/PB
15.	AV/PD/LT/2
16.	AV/T2/E ✓
17.	AV/T2/D ✓
18.	AV/T2/B ✓
19.	AV/T2/C ✓
20.	T2/HUT/D/P5
21.	T2(A)/HUT/D/P3 ✓
22.	T2(B)/HUT/D/P1
23.	T2/IN/D/P1/B
24.	T1/IN/D/P1/B
25.	T1/IN/D/P1/C
26.	T3/IN/D/P1/B

Preliminary

CESS Samples loaded on wheel on 02/01/06

Cathode Position	Lab. IP No.	Sample detail	Age (B.P)
29	317	RG/Shell/D $\beta$	< 500
30	319	IN/St/D	5700
31	321	T3/IN/D/P1/D	15500
34	331	T2/IN/D/P1/B	19000
35	327	T2(A)/HUT/D/P1	1800

→ Terrace 2.

LOP, Bhubaneswar

CP/70/06

May 5, 2006

Dear Dr. Raviprasad:

Enclosed please find nine sample for AMS samples along with sample sheets. The details of samples are as follows:

- |             |         |  |
|-------------|---------|--|
| 1. Kh/SB/1  | AMS-1   | Kharoi – sample from sandblow  |
| 2. Kh/SB/2  | AMS-2   | Kharoi - Sandblow sand   |
| 3. Kh/Sh/3  | AMS-3   | Kharoi-leftside of mainfault shear gouge                               |
| 4. BU/C1    | C1-AMS  | Budharmora – material from <sup>calcrete</sup> <del>clastic</del> zone |
| 5. BU/C2a   | C2a-AMS | Budharmora – material from south end of layer-2                        |
| 6. BU/C2b   |         | Budharmora – material from middle of layer                             |
| 7. GF/MP/D2 |         | Mohanpura – Andaman  |
| 8. GF/MP/D3 |         | Mohanpura – Andaman  |
| 9. Sh/V/1   |         | Shell/Vanagiri Shell from soil below tsunami layer 2 - Vanagiri        |

*Kelek*

Looking forward to hearing from you.

With regards

Yours sincerely

*C.P.*

C.P. Rajendran

To

Dr. G.V. Ravi Prasad  
Institute of Physics  
Bhubaneswar 751 005  
Orissa

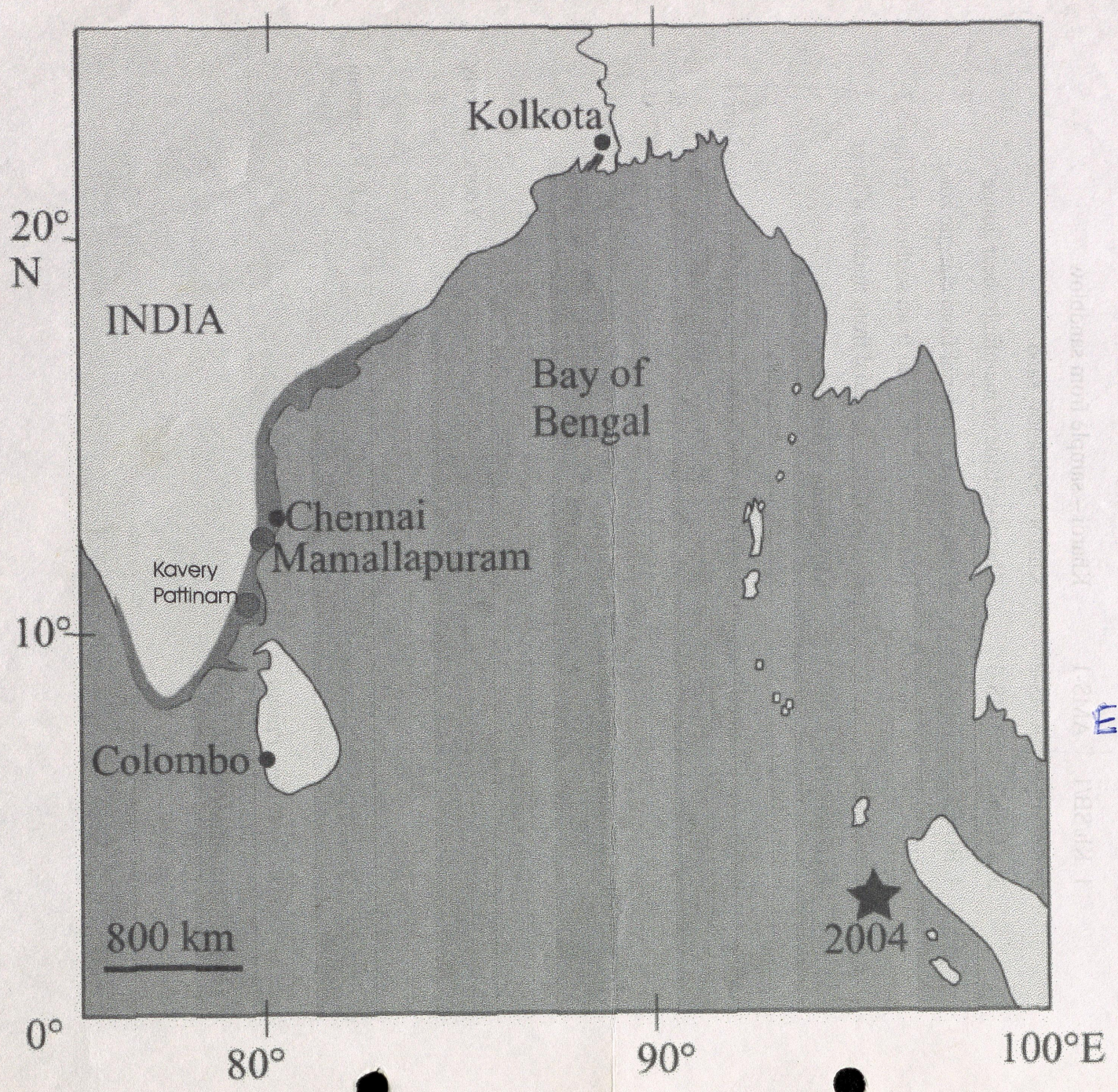


Fig.1

# DECLARATION

From Dr. C.P. Rajendran

OFFICE COPY

Address CESS, Akkulam,  
Trivandrum  
PIN- 695031

Phone 0471-2445803

Date 11-05-06

## TO WHOMSOEVER IT MAY CONCERN

is to certify that we are hereby sending this packet/parcel/sample through M.S. First Flight Couriers limited under their **C/N No** dated 11-5-06.

To Dr. G.V. Ravi Prasad Address Institute of Physics,

Bhubaneswar 751005 Destination Orissa.

Phone 0674-2301058 extn: 225 the parcel contains sand samples

quantity 1kg wt. having no commercial value.

Value Rs 208. (in words)

Four copies of invoice is enclosed for the same.

There is no hazardous, inflammable, explosive or any such items which are not allowed by Lines or under Indian Postal Act 1898.

We hereby confirm that the above declaration and informations provided are true to the best of our knowledge.

Yours faithfully,

Dr. C.P. Rajendran

Signature and name

Checked by  
(Full Name)

Official seal

Results received on 12/6/2006  
from IOP Shurenzhan

$\delta^{13}C$  corrections for radiocarbon ages measured as  $^{14}C/^{13}C$  ratios (Reimer et al., 2004)

Cathode	IP#	Sample Name	Uncorr. BP	error BP	$\delta^{13}C$	$\delta^{13}C$ err	
3	352	IN/TOP/B	25021 ± 280	24598	279.8	2	1 ± 25021 ± 280
4	334	T(2)B/HUT/D/P3	4682 ± 100	4259	99.5	2	1 4682 ±
7	330	T3/Har/HUT	1843 ± 77	1420	76.4	2	1
9	316	AV/PD/LT/1	623 ± 78	200	77.1	2	1
11	314	AV/T1/A	906 ± 108	483	107.9	2	1
12	326	AV/T1/PB	967 ± 104	544	103.6	2	1
13	349	T3/IN/D/P1/C	19304 ± 212	18881	212.2	2	1
16	350	T1/HUT/D/P2	6864 ± 117	6441	116.9	2	1
17	351	AV/T2/A	1628 ± 94	1205	93.5	2	1
28	353	T2/HUT/D/P1	3661 ± 133	3238	132.6	2	1
29	354	AV/PD/LT/2	98 ± 113	-325	112.7	2	1
30	375	AV/T2/E	1319 ± 91	896	90.4	2	1
32	376	AV/T2/D	1364 ± 126	941	125.7	2	1
3	318	RG/Shell/D	1354 ± 76	936	76	2	1
4	320	IN/S/D	6977 ± 85	6554	84.2	2	1
5	322	T3/IN/D/P1/D	16849 ± 123	16426	122.3	2	1
7	332	T2/IN/D/P1/B	21154 ± 168	20731	168.3	2	1
8	328	T2(A)/HUT/D/P1	1904 ± 61	1481	60.2	2	1
9	344	T1/IN/D/P1/B	22667 ± 174	22244	173.8	2	1
11	347	T1/IN/D/P1/C	1168 ± 289	11195	288.4	2	1
12	337	AV/T2/E	2450 ± 84	2027	83.2	2	1
13	338	AV/T2/D	1172 ± 42	1349	41.6	2	1
16	341	AV/T2/B	1942 ± 114	1519	113.6	2	1
17	346	AV/T2/C	1678 ± 89	1255	88.3	2	1
18	342	T2(A)/HUT/D/P3	3123 ± 47	2700	46.1	2	1
36	323	T(2)B/HUT/D/P4	6775 ± 135	6352	135	2	1
37	329	T2/HUT/D/P5	2295 ± 62	1872	61.7	2	1

70P  
25021 ±

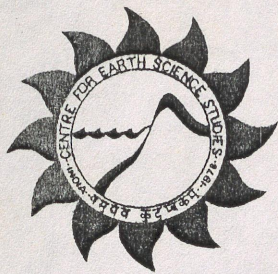
19304

16849

6977

6864 ± 117

IV



CENTRE FOR EARTH SCIENCE STUDIES

P.B. No. 7250, Akkulam  
Trivandrum 695 031  
Kerala, INDIA  
Tel.: +91-471 2445803  
Fax: +91-471 2442280

Dr. C.P. Rajendran  
Scientist

Date: 27/12/06

To:

Dr. G.V. Ravi Prasad  
Institute of Physics  
Bhubaneswar 751 005  
Orissa

Dear Dr Ravi Prasad,

Enclosed is a sample, meant  
for AMS dating. I will send you  
the dates sheet later.

Sample Id: VAN-2/L1/c