Per le attività internazionali sopraindicate, l'Italia nel 2005 ha versato all'Organizzazione 3,9 milioni di euro , quale propria quota parte (5,07% del totale, secondo la ripartizione delle Nazioni Unite). Sono stati inoltre utilizzati dall'Autorità Nazionale circa 650.000 euro per la realizzazione delle strutture nazionali, ed in particolare del Centro Nazionale Dati, e per l'espletamento delle altre attività nazionali ed internazionali. Per il 2006 è previsto che le quote da versare all'Organizzazione e da utilizzare per le esigenze nazionali si mantengano pressoché costanti.

IV. Attività di rilievo nel 2006

Le principali attività di rilievo dell'Ufficio dell'Autorità Nazionale previste per il 2006 saranno finalizzate alla:

- partecipazione alle due sessioni annuali della Commissione Preparatoria, a quelle dei suoi Gruppi di Lavoro A e B (delle quali la seconda è divisa in due parti), alle riunioni intersessionali, nonché agli incontri internazionali su temi di interesse;
- preparazione della legislazione nazionale e della normativa tecnica per l'attuazione del Trattato, per la raccolta e valutazione dei dati e lo scambio di informazioni con gli altri Stati Parte;
- potenziamento delle strutture operative del Centro Nazionale Dati;
- partecipazione di personale ai corsi di formazione internazionale;
- organizzazione di esercitazioni nazionali ed internazionali di monitoraggio e di simulazione di eventi significativi ai fini del Trattato;
- organizzazione di incontri e di seminari internazionali, rivolti all'universalità di applicazione del Trattato.

V. Il CTBT e lo tsunami

A seguito del terremoto che ha avuto luogo nella zona a Nord di Sumatra e del conseguente *tsunami* del 26 dicembre, il PTS ha avviato in maniera sperimentale la fornitura automatica di dati grezzi (forme d'onda) da parte di stazioni sismiche e idroacustiche dell'IMS a favore di organizzazioni internazionali che operano nel settore della mitigazione dei rischi associati a tali fenomeni naturali. Le relazioni presentate dal PTS stesso riguardo questo esperimento confermano la reale utilità di questa collaborazione.
L'implemetazione permanente di tale contributo incontra, però, la resistenza di taluni Stati firmatari, che mettono in evidenza possibili problemi riguardanti:

- il timore che un tale ruolo di *early warning* possa distrarre risorse dalla costruzione del sistema di monitoraggio e dal supporto all'Organizzazione e quindi comportare un aumento dei bilanci;
- la necessità che il PTS sia fornito di basi legali per assolvere un compito non previsto;

- la necessità di salvaguardare la natura confidenziale dei dati in possesso del PTS, i cui fruitori sono al momento solo i Centri Nazionali Dati.

Resta inteso, in ogni caso, che ogni sistema di allerta non può prescindere dallo sviluppo, da parte dei singoli Paesi, di sistemi nazionali di *early warning,* in grado non solo di ricevere e inoltrare dati, ma anche e soprattutto di trasformarli in decisioni operative, che raggiungano la popolazione coinvolta.
Il problema rimane aperto e sarà uno degli argomenti da affrontare nei prossimi anni.

VI. Conclusioni

Il Trattato sul Bando Totale degli Esperimenti Nucleari rappresenta una tappa fondamentale per prevenire la proliferazione nucleare. Ciò con notevoli riflessi di riduzione dei danni ambientali nonché con vantaggi civili e scientifici per tutti gli Stati Membri.

Il ritardo nella ratifica del Trattato da parte di alcuni Stati firmatari e la mancata firma da parte di altri non hanno finora impedito che esso si vada affermando nella comunità internazionale come norma vincolante e non hanno impedito la realizzazione della rete di monitoraggio e delle altre strutture previste.

Si tratta di un aspetto importante poiché è opinione diffusa che la disponibilità della rete di monitoraggio in corso di realizzazione potrà consentire una maggior trasparenza della situazione mondiale e stimolerà l'adesione di quegli Stati che ancora non vi hanno provveduto, consci anche dei vantaggi civili che una siffatta rete può costituire

L'Italia ha sempre attribuito grande importanza all'integrale ed efficace applicazione del Trattato. In tale contesto, messa a punto nel 2003 la parte legislativa che le ha consentito di contribuire con regolarità al funzionamento dell'Organizzazione, si è attivamente impegnata nel realizzare le proprie strutture operative, ed in particolare il Centro Nazionale Dati attraverso l'INGV, nel contribuire attivamente con i propri tecnici al funzionamento dell'Organizzazione e nell'esercitare sul piano internazionale la propria influenza per facilitare e incoraggiare la ratifica dei Paesi che non hanno ancora aderito al Trattato.

ALLEGATO A

Stato delle firme e delle ratifiche

• Firma e ratifica necessarie per l'entrata in vigore del CTBT

Afghanistan	24 SEP 2003	24 SEP 2003
Albania	27 SEP 1996	23 APR 2003
•Algeria	15 OCT 1996	11 JUL 2003
Andorra	24 SEP 1996	
Angola	27 SEP 1996	
Antigua and Barbuda	16 APR 1997	11 JAN 2006
•Argentina	24 SEP 1996	04 DEC 1998
Armenia	01 OCT 1996	
•Australia	24 SEP 1996	09 JUL 1998
•Austria	24 SEP 1996	13 MAR 1998
Azerbaijan	28 JUL 1997	02 FEB 1999
Bahamas	04 FEB 2005	
Bahrain	24 SEP 1996	12 APR 2004
•Bangladesh	24 OCT 1996	08 MAR 2000
Belarus	24 SEP 1996	13 SEP 2000
•Belgium	24 SEP 1996	29 JUN 1999
Belize	14 NOV 2001	26 MAR 2004
Benin	27 SEP 1996	06 MAR 2001
Bolivia	24 SEP 1996	04 OCT 1999
Bosnia and Herzegovina	24 SEP 1996	
Botswana	16 SEP 2002	28 OCT 2002
•Brazil	24 SEP 1996	24 JUL 1998
Brunei Darussalam	22 JAN 1997	
•Bulgaria	24 SEP 1996	29 SEP 1999
Burkina Faso	27 SEP 1996	17 APR 2002
Burundi	24 SEP 1996	
Cambodia	26 SEP 1996	10 NOV 2000
Cameroon	16 NOV 2001	06 FEB 2006
•Canada	24 SEP 1996	18 DEC 1998
Cape Verde	01 OCT 1996	01 MAR 2006
Central African Republic	19 DEC 2001	
Chad	08 OCT 1996	

• Chile	24 SEP 1996	12 JUL 2000
• China	24 SEP 1996	
• Colombia	24 SEP 1996	
Comoros	12 DEC 1996	
Congo	11 FEB 1997	
Cook Islands	05 DEC 1997	06 SEP 2005
Costa Rica	24 SEP 1996	25 SEP 2001
Cote d'Ivoire	25 SEP 1996	11 MAR 2003
Croatia	24 SEP 1996	02 MAR 2001
Cyprus	24 SEP 1996	18 JUL 2003
Czech Republic	12 NOV 1996	11 SEP 1997
• Democratic Republic of the Congo	04 OCT 1996	28 SEP 2004
Denmark	24 SEP 1996	21 DEC 1998
Djibouti	21 OCT 1996	15 JUL 2005
Dominican Republic	03 OCT 1996	
Ecuador	24 SEP 1996	12 NOV 2001
• Egypt	14 OCT 1996	
El Salvador	24 SEP 1996	11 SEP 1998
Equatorial Guinea	09 OCT 1996	
Eritrea	11 NOV 2003	11 NOV 2003
Estonia	20 NOV 1996	13 AUG 1999
Ethiopia	25 SEP 1996	
Fiji	24 SEP 1996	10 OCT 1996
• Finland	24 SEP 1996	15 JAN 1999
• France	24 SEP 1996	06 APR 1998
Gabon	07 OCT 1996	20 SEP 2000
Gambia	09 APR 2003	
Georgia	24 SEP 1996	27 SEP 2002
• Germany	24 SEP 1996	20 AUG 1998
Ghana	03 OCT 1996	
Greece	24 SEP 1996	21 APR 1999
Grenada	10 OCT 1996	19 AUG 1998
Guatemala	20 SEP 1999	
Guinea	03 OCT 1996	
Guinea-Bissau	11 APR 1997	
Guyana	07 SEP 2000	07 MAR 2001
Haiti	24 SEP 1996	01 DEC 2005
Holy See	24 SEP 1996	18 JUL 2001

Honduras	25 SEP 1996	30 OCT 2003
• Hungary	25 SEP 1996	13 JUL 1999
Iceland	24 SEP 1996	26 JUN 2000
• Indonesia	24 SEP 1996	
• Iran, Islamic Republic of	24 SEP 1996	
Ireland	24 SEP 1996	15 JUL 1999
• Israel	25 SEP 1996	
• Italy	24 SEP 1996	01 FEB 1999
Jamaica	11 NOV 1996	13 NOV 2001
• Japan	24 SEP 1996	08 JUL 1997
Jordan	26 SEP 1996	25 AUG 1998
Kazakhstan	30 SEP 1996	14 MAY 2002
Kenya	14 NOV 1996	30 NOV 2000
Kiribati	07 SEP 2000	07 SEP 2000
Kuwait	24 SEP 1996	06 MAY 2003
Kyrgyzstan	08 OCT 1996	02 OCT 2003
Lao People's Democratic Republic	30 JUL 1997	05 OCT 2000
Latvia	24 SEP 1996	20 NOV 2001
Lebanon	16 SEP 2005	
Lesotho	30 SEP 1996	14 SEP 1999
Liberia	01 OCT 1996	
Libyan Arab Jamahiriya	13 NOV 2001	06 JAN 2004
Liechtenstein	27 SEP 1996	21 SEP 2004
Lithuania	07 OCT 1996	07 FEB 2000
Luxembourg	24 SEP 1996	26 MAY 1999
Madagascar	09 OCT 1996	15 SEP 2005
Malawi	09 OCT 1996	
Malaysia	23 JUL 1998	
Maldives	01 OCT 1997	07 SEP 2000
Mali	18 FEB 1997	04 AUG 1999
Malta	24 SEP 1996	23 JUL 2001
Marshall Islands	24 SEP 1996	
Mauritania	24 SEP 1996	30 APR 2003
• Mexico	24 SEP 1996	05 OCT 1999
Micronesia, Federated States of	24 SEP 1996	25 JUL 1997
Monaco	01 OCT 1996	18 DEC 1998
Mongolia	01 OCT 1996	08 AUG 1997
Morocco	24 SEP 1996	17 APR 2000

Mozambique	26 SEP 1996	
Myanmar	25 NOV 1996	
Namibia	24 SEP 1996	29 JUN 2001
Nauru	08 SEP 2000	12 NOV 2001
Nepal	08 OCT 1996	
•Netherlands	24 SEP 1996	23 MAR 1999
New Zealand	27 SEP 1996	19 MAR 1999
Nicaragua	24 SEP 1996	05 DEC 2000
Niger	03 OCT 1996	09 SEP 2002
Nigeria	08 SEP 2000	27 SEP 2001
•Norway	24 SEP 1996	15 JUL 1999
Oman	23 SEP 1999	13 JUN 2003
Palau	12 AUG 2003	
Panama	24 SEP 1996	23 MAR 1999
Papua New Guinea	25 SEP 1996	
Paraguay	25 SEP 1996	04 OCT 2001
•Peru	25 SEP 1996	12 NOV 1997
Philippines	24 SEP 1996	23 FEB 2001
•Poland	24 SEP 1996	25 MAY 1999
Portugal	24 SEP 1996	26 JUN 2000
Qatar	24 SEP 1996	03 MAR 1997
•Republic of Korea	24 SEP 1996	24 SEP 1999
Republic of Moldova	24 SEP 1997	
•Romania	24 SEP 1996	05 OCT 1999
•Russian Federation	24 SEP 1996	30 JUN 2000
Rwanda	30 NOV 2004	30 NOV 2004
Saint Kitts and Nevis	23 MAR 2004	27 APR 2005
Saint Lucia	04 OCT 1996	05 APR 2001
Samoa	09 OCT 1996	27 SEP 2002
San Marino	07 OCT 1996	12 MAR 2002
Sao Tome and Principe	26 SEP 1996	
Senegal	26 SEP 1996	09 JUN 1999
Serbia and Montenegro	08 JUN 2001	19 MAY 2004
Seychelles	24 SEP 1996	13 APR 2004
Sierra Leone	08 SEP 2000	17 SEP 2001
Singapore	14 JAN 1999	10 NOV 2001
•Slovakia	30 SEP 1996	03 MAR 1998
Slovenia	24 SEP 1996	31 AUG 1999

Solomon Islands	03 OCT 1996	
• South Africa	24 SEP 1996	30 MAR 1999
• Spain	24 SEP 1996	31 JUL 1998
Sri Lanka	24 OCT 1996	
Sudan	10 JUN 2004	10 JUN 2004
Suriname	14 JAN 1997	07 FEB 2006
Swaziland	24 SEP 1996	
• Sweden	24 SEP 1996	02 DEC 1998
• Switzerland	24 SEP 1996	01 OCT 1999
Tajikistan	07 OCT 1996	10 JUN 1998
Thailand	12 NOV 1996	
The former Yugoslav Republic of Macedonia	29 OCT 1998	14 MAR 2000
Togo	02 OCT 1996	02 JUL 2004
Tunisia	16 OCT 1996	23 SEP 2004
• Turkey	24 SEP 1996	16 FEB 2000
Turkmenistan	24 SEP 1996	20 FEB 1998
Uganda	07 NOV 1996	14 MAR 2001
• Ukraine	27 SEP 1996	23 FEB 2001
United Arab Emirates	25 SEP 1996	18 SEP 2000
• United Kingdom	24 SEP 1996	06 APR 1998
United Republic of Tanzania	30 SEP 2004	30 SEP 2004
• United States of America	24 SEP 1996	
Uruguay	24 SEP 1996	21 SEP 2001
Uzbekistan	03 OCT 1996	29 MAY 1997
Vanuatu	24 SEP 1996	16 SEP 2005
Venezuela	03 OCT 1996	13 MAY 2002
• Viet Nam	24 SEP 1996	10 MAR 2006
Yemen	30 SEP 1996	
Zambia	03 DEC 1996	23 FEB 2006
Zimbabwe	13 OCT 1999	

Total States: **176** Total Signed: **176** Total Ratified: **132**

Not Ratified: **44**

ALLEGATO B

Il Sistema di Monitoraggio Internazionale

State	Location	Type	Treaty Code	Coordinates	
				Lat	Lon
Argentina	Paso Flores PLCA	Primary Seismic	PS01	-40.7	-70.6
Argentina	Coronel Fontana CFA	Auxiliary Seismic	AS001	-31.6	-68.2
Argentina	Ushuaia USHA	Auxiliary Seismic	AS002	-55.0	-68.0
Argentina	Buenos Aires	Radionuclide Station	RN01	-34.0	-58.0
Argentina	Salta	Radionuclide Station	RN02	-24.0	-65.0
Argentina	Bariloche	Radionuclide Station	RN03	-41.1	-71.3
Argentina	National Board of Nuclear Regulation Buenos Aires	Radionuclide Laboratory	RL01	TBD	TBD
Argentina	Paso Flores	Infrasound Station	IS01	-40.7	-70.6
Argentina	Ushuaia	Infrasound Station	IS02	-55.0	-68.0
Armenia	Garni GNI	Auxiliary Seismic	AS003	40.01.00	44.07.00
Australia	Warramunga, NT WRA	Primary Seismic	PS02	-19.9	134.03.00
Australia	Alice Springs, NT ASAR	Primary Seismic	PS03	-23.7	133.09.00
Australia	Stephens Creek, SA STKA	Primary Seismic	PS04	-31.9	141.06.00
Australia	Mawson, Antarctica MAW	Primary Seismic	PS05	-67.6	62.09.00
Australia	Charters Towers, QLD CTA	Auxiliary Seismic	AS004	-20.1	146.03.00
Australia	Fitzroy Crossing, WA FITZ	Auxiliary Seismic	AS005	-18.1	125.06.00
Australia	Narrogin, WA NWAO	Auxiliary Seismic	AS006	-32.9	117.02.00
Australia	Melbourne, VIC	Radionuclide Station	RN04	-37.5	144.06.00
Australia	Mawson, Antarctica	Radionuclide Station	RN05	-67.6	62.05.00
Australia	Townsville, QLD	Radionuclide Station	RN06	-19.2	146.08.00
Australia	Macquarie Island	Radionuclide Station	RN07	-54.0	159.00.00
Australia	Cocos Islands	Radionuclide Station	RN08	-12.0	97.00.00
Australia	Darwin, NT	Radionuclide Station	RN09	-12.4	130.07.00
Australia	Perth, WA	Radionuclide Station	RN10	-31.9	116.00.00
Australia	Australian Radiation Laboratory Melbourne,	Radionuclide	RL02	TBD	TBD
Australia	Cape Leeuwin,WA	Hydroacoustic Station	HA01	-34.4	115.01.00
Australia	Davis Base, Antarctica	Infrasound Station	IS03	-68.4	77.06.00
Australia	Narrogin, WA	Infrasound Station	IS04	-32.9	117.02.00
Australia	Hobart, TAS	Infrasound Station	IS05	-42.1	147.02.00
Australia	Cocos Islands	Infrasound Station	IS06	-12.3	97.00.00
Australia	Warramunga, NT	Infrasound Station	IS07	-19.9	134.03.00
Austria	Austrian Research Centre Seibersdorf	Radionuclide	RL03	TBD	TBD
Bangladesh	Chittagong CHT	Auxiliary Seismic	AS007	22.04	91.08.00
Bolivia	La Paz LPAZ	Primary Seismic	PS06	-16.3	-68.1
Bolivia	San Ignacio SIV	Auxiliary Seismic	AS008	-16.0	-61.1
Bolivia	La Paz	Infrasound Station	IS08	-16.3	-68.1
Botswana	Lobatse LBTB	Auxiliary Seismic	AS009	-25.0	25.06.00
Brazil	Brasilia BDFB	Primary Seismic	PS07	-15.6	-48.0
Brazil	Pitinga PTGA	Auxiliary Seismic	AS010	-.7	-60.0
Brazil	Rio Grande do Norte RGNB	Auxiliary Seismic	AS011	-6.9	-37.0
Brazil	Rio de Janeiro	Radionuclide Station	RN11	-22.5	-43.1
Brazil	Recife	Radionuclide Station	RN12	-8.0	-35.0
Brazil	Institute of Radiation Protection and Dosimetry Rio de Janeiro	Radionuclide Laboratory	RL04	TBD	TBD
Brazil	Brasilia	Infrasound Station	IS09	-15.6	-48.0
Cameroon	Douala	Radionuclide Station	RN13	4.02	9.09
Canada	Lac du Bonnet, Man. ULMC	Primary Seismic	PS08	50.02.00	-95.9

Canada	Yellowknife, N.W.T. YKAC	Primary Seismic	PS09	62.05.00	-114.6
Canada	Scheffervillle, Quebec SCH	Primary Seismic	PS10	54.08.00	-66.8
Canada	Iqaluit, N.W.T. FRB	Auxiliary Seismic	AS012	63.07.00	-68.5
Canada	Dease Lake, B.C. DLBC	Auxiliary Seismic	AS013	58.04.00	-130.0
Canada	Sadowa, Ont. SADO	Auxiliary Seismic	AS014	44.08.00	-79.1
Canada	Bella Bella, B.C. BBB	Auxiliary Seismic	AS015	52.02.00	-128.1
Canada	Mould Bay, N.W.T. MBC	Auxiliary Seismic	AS016	76.02.00	-119.4
Canada	Inuvik, N.W.T. INK	Auxiliary Seismic	AS017	68.03.00	-133.5
Canada	Vancouver, B.C.	Radionuclide Station	RN14	49.03.00	-123.2
Canada	Resolute, N.W.T.	Radionuclide Station	RN15	74.07.00	-94.9
Canada	Yellowknife, N.W.T.	Radionuclide Station	RN16	62.05.00	-114.5
Canada	St. John's N.L.	Radionuclide Station	RN17	47.00.00	-53.0
Canada	Health Canada Ottawa, Ont	Radionuclide	RL05	TBD	TBD
Canada	Queen Charlotte Islands, B.C.	Hydroacoustic Station	HA02	53.03.00	-132.5
Canada	Lac du Bonnet, Man.	Infrasound Station	IS10	50.02.00	-95.9
Cape Verde	Cape Verde Islands	Infrasound Station	IS11	16.00	-24.0
Central African	Bangui BGCA	Primary Seismic	PS11	5.02	18.04
Central African	Bangui	Infrasound Station	IS12	5.02	18.04
Chile	Easter Island RPN	Auxiliary Seismic	AS018	-27.2	-109.4
Chile	Limon Verde LVC	Auxiliary Seismic	AS019	-22.6	-68.9
Chile	Punta Arenas	Radionuclide Station	RN18	-53.1	-70.6
Chile	Hanga Roa, Easter Island	Radionuclide Station	RN19	-27.1	-108.4
Chile	Juan Fernandez Island	Hydroacoustic Station	HA03	-33.7	-78.8
Chile	Easter Island	Infrasound Station	IS13	-27.0	-109.2
Chile	Juan Fernandez Island	Infrasound Station	IS14	-33.8	-80.7
China	Hailar HAI	Primary Seismic	PS12	49.03.00	119.07.00
China	Lanzhou LZH	Primary Seismic	PS13	36.01.00	103.08.00
China	Baijiatuan BJT	Auxiliary Seismic	AS020	40.00.00	116.02.00
China	Kunming KMI	Auxiliary Seismic	AS021	25.02.00	102.08.00
China	Sheshan SSE	Auxiliary Seismic	AS022	31.01.00	121.02.00
China	Xi'an XAN	Auxiliary Seismic	AS023	34.00.00	108.09.00
China	Beijing	Radionuclide Station	RN20	39.08.00	116.02.00
China	Lanzhou	Radionuclide Station	RN21	35.08.00	103.03.00
China	Guangzhou	Radionuclide Station	RN22	23.00	113.03.00
China	Beijing	Radionuclide	RL06	TBD	TBD
China	Beijing	Infrasound Station	IS15	40.00.00	116.00.00
China	Kunming	Infrasound Station	IS16	25.00.00	102.08.00
Colombia	El Rosal XSA	Primary Seismic	PS14	4.09	-74.3
Cook Islands	Rarotonga RAR	Auxiliary Seismic	AS024	-21.2	-159.8
Cook Islands	Rarotonga	Radionuclide Station	RN23	-21.2	-159.8
Costa Rica	Las Juntas de Abangares JTS	Auxiliary Seismic	AS025	10.03	-85.0
Cote d'Ivoire	Dimbroko DBIC	Primary Seismic	PS15	6.07	-4.9
Cote d'Ivoire	Dimbokro	Infrasound Station	IS17	6.07	-4.9
Czech Republic	Vranov VRAC	Auxiliary Seismic	AS026	49.03.00	16.06
Denmark	Sondre Stromfjord, Greenland SFJ	Auxiliary Seismic	AS027	67.00.00	-50.6
Denmark	Dundas, Greenland	Infrasound Station	IS18	76.05.00	-68.7
Djibouti	Arta Tunnel ATD	Auxiliary Seismic	AS028	11.05	42.09.00
Djibouti	Dijibouti	Infrasound Station	IS19	11.03	43.05.00
Ecuador	Isla San Cristobal, Galapagos Islands	Radionuclide Station	RN24	-1.0	-89.2
Ecuador	Galapagos Islands	Infrasound Station	IS20	.0	-91.7
Egypt	Luxor LXEG	Primary Seismic	PS16	26.00.00	33.00.00
Egypt	Kottamya KEG	Auxiliary Seismic	AS029	29.09.00	31.08.00
Ethiopia	Furi FURI	Auxiliary Seismic	AS030	8.09	38.07.00
Ethiopia	Filtu	Radionuclide Station	RN25	5.05	42.07.00
Fiji	Monasavu, Viti Levu MSVF	Auxiliary Seismic	AS031	-17.8	178.01.00

Fiji	Nadi	Radionuclide Station	RN26	-18.0	177.05.00
Finland	Lahti FINES	Primary Seismic	PS17	61.04.00	28.01.00
Finland	Centre for Radiation and Nuclear Safety	Radionuclide	RL07	TBD	TBD
France	Tahiti PPT	Primary Seismic Station	PS18	-17.6	-149.6
France	Port Laguerre, New Caledonia NOUC	Auxiliary Seismic	AS032	-22.1	166.03.00
France	Kourou, French Guiana KOG	Auxiliary Seismic	AS033	5.02	-52.7
France	Papeete, Tahiti	Radionuclide Station	RN27	-17.0	-150.0
France	Pointe-a-Pitre, Guadeloupe	Radionuclide Station	RN28	17.00	-62.0
France	Reunion	Radionuclide Station	RN29	-21.1	55.06.00
France	Port-aux-Francais, Kerguelen	Radionuclide Station	RN30	-49.0	70.00.00
France	Cayenne, French Guiana	Radionuclide Station	RN31	5.00	-52.0
France	Dumont d'Urville, Antartica	Radionuclide Station	RN32	-66.0	140.00.00
France	Atomic Energy Commission Montlhery	Radionuclide	RL08	TBD	TBD
France	Crozet Islands	Hydroacoustic Station	HA04	-46.5	52.02.00
France	Guadeloupe	Hydroacoustic Station	HA05	16.03	-61.1
France	Marquesas Islands	Infrasound Station	IS21	-10.0	-140.0
France	Port LaGuerre, New Caledonia	Infrasound Station	IS22	-22.1	166.03.00
France	Kerguelen	Infrasound Station	IS23	-49.2	69.01.00
France	Tahiti	Infrasound Station	IS24	-17.6	-149.6
France	Kourou, French Guiana	Infrasound Station	IS25	5.02	-52.7
Gabon	Bambay BAMB	Auxiliary Seismic	AS034	-1.7	13.06
Germany	Freyung GEC2	Primary Seismic	PS19	48.09.00	13.07
Germany	Schauinsland/Freiburg	Radionuclide Station	RN33	47.09.00	7.09
Germany	Freyung	Infrasound Station	IS26	48.09.00	13.07
Germany	Georg von Neumayer, Antarctica	Infrasound Station	IS27	-70.6	-8.4
Germany/South Africa	SANAE Station, Antarctica SNAA	Auxiliary Seismic	AS035	-71.7	-2.9
Greece	Anogia, Crete IDI	Auxiliary Seismic	AS036	35.03.00	24.09.00
Guatemala	Rabir RDG	Auxiliary Seismic	AS037	15.00	-90.5
Iceland	Borgames BORG	Auxiliary Seismic	AS038	64.08.00	-21.3
Iceland	Reykjavik	Radionuclide Station	RN34	64.04.00	-21.9
Indonesia	Cibinong, Jawa Barat PACI	Auxiliary Seismic	AS040	-6.5	107.00.00
Indonesia	Jayapura, Irian Jaya JAY	Auxiliary Seismic	AS041	-2.5	140.07.00
Indonesia	Sorong, Irian Jaya SWI	Auxiliary Seismic	AS042	-.9	131.03.00
Indonesia	Parapat, Sumatera PSI	Auxiliary Seismic	AS043	2.07	98.09.00
Indonesia	Kappang, Sulawesi Selatan KAPI	Auxiliary Seismic	AS044	-5.0	119.08.00
Indonesia	Kupang, Nusatenggara Timur KUG	Auxiliary Seismic	AS045	-10.2	123.06.00
Iran, Islamic Republic of	Tehran THR	Primary Seismic	PS21	35.08.00	51.04.00
Iran, Islamic Republic of	Kerman KRM	Auxiliary Seismic	AS046	30.03.00	57.01.00
Iran, Islamic Republic of	Masjed-e-Soleyman MSN	Auxiliary Seismic	AS047	31.09.00	49.03.00
Iran, Islamic Republic of	Tehran	Radionuclide Station	RN36	35.00.00	52.00.00
Iran, Islamic Republic of	Tehran	Infrasound Station	IS29	35.07.00	51.04.00
Israel	Eilath MBH	Auxiliary Seismic	AS048	29.08.00	34.09.00
Israel	Parod PARD	Auxiliary Seismic	AS049	32.06.00	35.03.00
Israel	Soreq Nuclear Research Centre Yavne	Radionuclide	RL09	TBD	TBD
Italy	Enna, Sicily ENAS	Auxiliary Seismic	AS050	37.05.00	14.03
Italy	Laboratory of the National Agency for the Protection of the Environment Rome	Radionuclide Laboratory	RL10	TBD	TBD
Japan	Matsushiro MJAR	Primary Seismic	PS22	36.05.00	138.02.00
Japan	Ohita, Kyushu JNU	Auxiliary Seismic	AS051	33.01.00	130.09.00
Japan	Kunigami, Okinawa JOW	Auxiliary Seismic	AS052	26.08.00	128.03.00
Japan	Hachijojima, Izu Islands JHJ	Auxiliary Seismic	AS053	33.01.00	139.08.00
Japan	Kamikawa-asahi, Hokkaido JKA	Auxiliary Seismic	AS054	44.01.00	142.06.00
Japan	Chichijima, Ogasawara JCJ	Auxiliary Seismic	AS055	27.01.00	142.02.00
Japan	Okinawa	Radionuclide Station	RN37	26.05.00	127.09.00
Japan	Takasaki, Gunma	Radionuclide Station	RN38	36.03.00	139.00.00

Japan	Japan Atomic Energy Research Institute Tokai, Ibaraki	Radionuclide Laboratory	RL11	TBD	TBD
Japan	Tsukuba	Infrasound Station	IS30	36.00.00	140.01.00
Jordan	Ashqof	Auxiliary Seismic	AS056	32.05.00	37.06.00
Kazakhstan	Makanchi MAK	Primary Seismic	PS23	46.08.00	82.00.00
Kazakhstan	Borovoye BRVK	Auxiliary Seismic	AS057	53.01.00	70.03.00
Kazakhstan	Kurchatov KURK	Auxiliary Seismic	AS058	50.07.00	78.06.00
Kazakhstan	Aktyubinsk AKTO	Auxiliary Seismic	AS059	50.04.00	58.00.00
Kazakhstan	Aktyubinsk	Infrasound Station	IS31	50.04.00	58.00.00
Kenya	Kilimambogo KMBO	Primary Seismic	PS24	-1.1	37.02.00
Kenya	Kilimambogo	Infrasound Station	IS32	-1.3	36.08.00
Kiribati	Kiritimati	Radionuclide Station	RN39	2.00	-157.0
Kuwait	Kuwait City	Radionuclide Station	RN40	29.00.00	48.00.00
Kyrgyzstan	Ala-Archa AAK	Auxiliary Seismic	AS060	42.06.00	74.05.00
Libyan Arab Jamahiriya	Misratah	Radionuclide Station	RN41	32.05.00	15.00
Madagascar	Antananarivo TAN	Auxiliary Seismic	AS061	-18.9	47.06.00
Madagascar	Antananarivo	Infrasound Station	IS33	-18.8	47.05.00
Malaysia	Kuala Lumpur	Radionuclide Station	RN42	2.06	101.05.00
Mali	Kowa KOWA	Auxiliary Seismic	AS062	14.05	-4.0
Mauritania	Nouakchott	Radionuclide Station	RN43	18.00	-17.0
Mexico	Tepich, Yucatan TEYM	Auxiliary Seismic	AS063	20.02	-88.3
Mexico	Tuzandepeti, Veracruz TUVM	Auxiliary Seismic	AS064	18.00	-94.4
Mexico	La Paz, Baja California Sur LPBM	Auxiliary Seismic	AS065	24.02.00	-110.2
Mexico	Baja California	Radionuclide Station	RN44	28.00.00	-113.0
Mexico	Clarin Island	Hydroacoustic Station	HA06	18.02	-114.6
Mongolia	Javhlant JAVM	Primary Seismic	PS25	48.00.00	106.08.00
Mongolia	Ulaanbaatar	Radionuclide Station	RN45	47.05.00	107.00.00
Mongolia	Javhlant	Infrasound Station	IS34	48.00.00	106.08.00
Morocco	Midelt MDT	Auxiliary Seismic	AS066	32.08.00	-4.6
Namibia	Tsumed TSUM	Auxiliary Seismic	AS067	-19.1	17.04
Namibia	Tsumeb	Infrasound Station	IS35	-19.1	17.04
Nepal	Everest EVN	Auxiliary Seismic	AS068	28.00.00	86.08.00
New Zealand	Erewhon, South Island EWZ	Auxiliary Seismic	AS069	-43.5	170.09.00
New Zealand	Raoul Island RAO	Auxiliary Seismic	AS070	-29.2	-177.9
New Zealand	Urewera, North Island URZ	Auxiliary Seismic	AS071	-38.3	177.01.00
New Zealand	Chatham Island	Radionuclide Station	RN46	-44.0	-176.5
New Zealand	Kaitaia	Radionuclide Station	RN47	-35.1	173.03.00
New Zealand	National Radiation Laboratory Christchurch	Radionuclide	RL12	TBD	TBD
New Zealand	Chatham Island	Infrasound Station	IS36	-44.0	-176.5
Niger	New Site	Primary Seismic	PS26	TBD	TBD
Niger	Bilma	Radionuclide Station	RN48	18.00	13.00
Norway	Hamar NAO	Primary Seismic	PS27	60.08.00	10.08
Norway	Karasjok ARAO	Primary Seismic	PS28	69.05.00	25.05.00
Norway	Spitsbergen SPITS	Auxiliary Seismic	AS072	78.02.00	16.04
Norway	Jan Mayen JMI	Auxiliary Seismic	AS073	70.09.00	-8.7
Norway	Spitsbergen	Radionuclide Station	RN49	78.02.00	16.04
Norway	Karasjok	Infrasound Station	IS37	69.05.00	25.05.00
Oman	Wadi Sarin WSAR	Auxiliary Seismic	AS074	23.00	58.00.00
Pakistan	Pari PPPK	Primary Seismic	PS29	33.07.00	73.03.00
Pakistan	Rahimyar Khan	Infrasound Station	IS38	28.02.00	70.03.00
Palau	Palau	Infrasound Station	IS39	7.05	134.05.00
Panama	Panama City	Radionuclide Station	RN50	8.09	-79.6
Papua New Guinea	Port Moresby PMG	Auxiliary Seismic	AS075	-9.4	147.02.00
Papua New Guinea	Bialla BIAL	Auxiliary Seismic	AS076	-5.3	151.01.00
Papua New Guinea	New Hanover	Radionuclide Station	RN51	-3.0	150.00.00
Papua New Guinea	Rabaul	Infrasound Station	IS40	-4.1	152.01.00

Paraguay	Villa Florida CPUP	Primary Seismic	PS30	-26.3	-57.3
Paraguay	Villa Florida	Infrasound Station	IS41	-26.3	-57.3
Peru	Cajamarca CAJP	Auxiliary Seismic	AS077	-7.0	-78.0
Peru	Nana NNA	Auxiliary Seismic	AS078	-12.0	-76.8
Philippines	Davao, Mindanao DAV	Auxiliary Seismic	AS079	7.01	125.06.00
Philippines	Tagaytay, Luzon TGY	Auxiliary Seismic	AS080	14.01	120.09.00
Philippines	Quezon City	Radionuclide Station	RN52	14.05	121.00.00
Portugal	Ponta Delgada, S?o Miguel, Azores	Radionuclide Station	RN53	37.04.00	-25.4
Portugal	Flores	Hydroacoustic Station	HA07	39.03.00	-31.3
Portugal	Azores	Infrasound Station	IS42	37.08.00	-25.5
Republic of Korea	Wonju KSRS	Primary Seismic	PS31	37.05.00	127.09.00
Romania	Muntele Rosu MLR	Auxiliary Seismic	AS081	45.05.00	25.09.00
Russian Federation	Khabaz KBZ	Primary Seismic	PS32	43.07.00	42.09.00
Russian Federation	Zalesovo ZAL	Primary Seismic	PS33	53.09.00	84.08.00
Russian Federation	Norilsk NRI	Primary Seismic	PS34	69.00.00	88.00.00
Russian Federation	Peleduy PDY	Primary Seismic	PS35	59.06.00	112.06.00
Russian Federation	Petropavliovsk-Kamchatskiy PET	Primary Seismic	PS36	53.01.00	157.08.00
Russian Federation	Ussuriysk USK	Primary Seismic	PS37	44.02.00	132.00.00
Russian Federation	Kirov KIRV	Auxiliary Seismic	AS082	58.06.00	49.04.00
Russian Federation	Kislovodsk KIVO	Auxiliary Seismic	AS083	44.00.00	42.07.00
Russian Federation	Obninsk OBN	Auxiliary Seismic	AS084	55.01.00	36.06.00
Russian Federation	Arti ARU	Auxiliary Seismic	AS085	56.04.00	58.06.00
Russian Federation	Seymchan SEY	Auxiliary Seismic	AS086	62.09.00	152.04.00
Russian Federation	Talaya TLY	Auxiliary Seismic	AS087	51.07.00	103.06.00
Russian Federation	Yakutsk YAK	Auxiliary Seismic	AS088	62.00.00	129.07.00
Russian Federation	Urgal URG	Auxiliary Seismic	AS089	51.01.00	132.03.00
Russian Federation	Bilibino BIL	Auxiliary Seismic	AS090	68.00.00	166.04.00
Russian Federation	Tiksi TIXI	Auxiliary Seismic	AS091	71.06.00	128.09.00
Russian Federation	Yuzhno-Sakhalinsk YSS	Auxiliary Seismic	AS092	47.00.00	142.08.00
Russian Federation	Magadan MA2	Auxiliary Seismic	AS093	59.06.00	150.08.00
Russian Federation	Zilim ZIL	Auxiliary Seismic	AS094	53.09.00	57.00.00
Russian Federation	Kirov	Radionuclide Station	RN54	58.06.00	49.04.00
Russian Federation	Norilsk	Radionuclide Station	RN55	69.00.00	88.00.00
Russian Federation	Peleduy	Radionuclide Station	RN56	59.06.00	112.06.00
Russian Federation	Bilibino	Radionuclide Station	RN57	68.00.00	166.04.00
Russian Federation	Ussuriysk	Radionuclide Station	RN58	43.07.00	131.09.00
Russian Federation	Zalesovo	Radionuclide Station	RN59	53.09.00	84.08.00
Russian Federation	Petropavlovsk-Kamchatskiy	Radionuclide Station	RN60	53.01.00	158.08.00
Russian Federation	Dubna	Radionuclide Station	RN61	56.07.00	37.03.00
Russian Federation	Central Radiation Control Laboratory Ministry of Defence Special Verification	Radionuclide Laboratory	RL13	TBD	TBD
Russian Federation	Dubna	Infrasound Station	IS43	56.07.00	37.03.00
Russian Federation	Petropavlovsk-Kamchatskiy	Infrasound Station	IS44	53.01.00	158.08.00
Russian Federation	Ussuriysk	Infrasound Station	IS45	43.07.00	131.09.00
Russian Federation	Zalesovo	Infrasound Station	IS46	53.09.00	84.08.00
Samoa	Afiamalu AFI	Auxiliary Seismic	AS095	-13.9	-171.8
Saudi Arabia	New Site	Primary Seismic	PS38	TBD	TBD
Saudi Arabia	Ar Rayn RAYN	Auxiliary Seismic	AS096	23.06	45.06.00
Senegal	Mbour MBO	Auxiliary Seismic	AS097	14.04	-17.0
Solomon Islands	Honiara, Guadalcanal HNR	Auxiliary Seismic	AS098	-9.4	160.00.00
South Africa	Boshof BOSA	Primary Seismic	PS39	-28.6	25.06.00
South Africa	Sutherland SUR	Auxiliary Seismic	AS099	-32.4	20.08
South Africa	Marion Island	Radionuclide Station	RN62	-46.5	37.00.00
South Africa	Atomic Energy Corporation Pelindaba	Radionuclide	RL14	TBD	TBD
South Africa	Boshof	Infrasound Station	IS47	-28.6	25.04.00
Spain	Sonseca ESDC	Primary Seismic	PS40	39.07.00	-4.0

Sri Lanka	Colombo COC	Auxiliary Seismic	AS100	6.09	79.09.00
Sweden	Hagfors HFS	Auxiliary Seismic	AS101	60.01.00	13.07
Sweden	Stockholm	Radionuclide Station	RN63	59.04.00	18.00
Switzerland	Davos DAVOS	Auxiliary Seismic	AS102	46.08.00	9.08
TBD	TBD	Primary Seismic	PS20	TBD	TBD
TBD	TBD	Auxiliary Seismic	AS039	TBD	TBD
TBD	TBD	Radionuclide Station	RN35	TBD	TBD
TBD	TBD	Infrasound Station	IS28	TBD	TBD
Thailand	Chiang Mai CMTO	Primary Seismic	PS41	18.08	99.00.00
Thailand	Bangkok	Radionuclide Station	RN65	13.08	100.05.00
Tunisia	Thala THA	Primary Seismic	PS42	35.06.00	8.07
Tunisia	Thala	Infrasound Station	IS48	35.06.00	8.07
Turkey	Belbashi BRTR	Primary Seismic	PS43	39.09.00	32.08.00
Turkmenistan	Alibeck GEYT	Primary Seismic	PS44	37.09.00	58.01.00
Uganda	Mbarara MBRU	Auxiliary Seismic	AS103	-.4	30.04.00
Ukraine	Malin AKASG	Primary Seismic	PS45	50.04.00	29.01.00
United Kingdom	Eskdalemuir EKA	Auxiliary Seismic	AS104	55.03.00	-3.2
United Kingdom	BIOT/Chagos Archipelago	Radionuclide Station	RN66	-7.0	72.00.00
United Kingdom	St. Helena	Radionuclide Station	RN67	-16.0	-6.0
United Kingdom	Tristan da Cunha	Radionuclide Station	RN68	-37.0	-12.3
United Kingdom	Halley, Antarctica	Radionuclide Station	RN69	-76.0	-28.0
United Kingdom	AWE Blacknest Chilton	Radionuclide	RL15	TBD	TBD
United Kingdom	BIOT/Chagos Archipelago	Hydroacoustic Station	HA08	-7.3	72.04.00
United Kingdom	Tristan da Cunha	Hydroacoustic Station	HA09	-37.2	-12.5
United Kingdom	Tristan da Cunha	Infrasound Station	IS49	-37.0	-12.3
United Kingdom	Ascension	Infrasound Station	IS50	-8.0	-14.3
United Kingdom	Bermuda	Infrasound Station	IS51	32.00.00	-64.5
United Kingdom	BIOT/Chagos Archipelago	Infrasound Station	IS52	-5.0	72.00.00
United Republic of	Dar es Salaam	Radionuclide Station	RN64	-6.0	39.00.00
United States of	Lajitas, TX LJTX	Primary Seismic	PS46	29.03.00	-103.7
United States of	Mina, NV MNV	Primary Seismic	PS47	38.04.00	-118.2
United States of	Pinedale, WY PIWY	Primary Seismic	PS48	42.08.00	-109.6
United States of	Eiesoen, AK ELAK	Primary Seismic	PS49	64.08.00	-146.9
United States of	Vanda, Antarctica VNDA	Primary Seismic	PS50	-77.5	161.09.00
United States of	Guam, Marianas Islands GUMO	Auxiliary Seismic	AS105	13.06	144.09.00
United States of	Palmer Station, Antarctica PMSA	Auxiliary Seismic	AS106	-64.8	-64.1
United States of	Tuckaleechee Caverns, TN TKL	Auxiliary Seismic	AS107	35.07.00	-83.8
United States of	Pi?on Flat, CA PFCA	Auxiliary Seismic	AS108	33.06.00	-116.5
United States of	Yreka, CA YBH	Auxiliary Seismic	AS109	41.07.00	-122.7
United States of	Kodiak Island, AK KDC	Auxiliary Seismic	AS110	57.08.00	-152.5
United States of	Albuquerque, NM ALQ	Auxiliary Seismic	AS111	35.00.00	-106.5
United States of	Attu Island, AK ATTU	Auxiliary Seismic	AS112	52.08.00	172.07.00
United States of	Elko, NV ELK	Auxiliary Seismic	AS113	40.07.00	-115.2
United States of	South Pole, Antarctica SPA	Auxiliary Seismic	AS114	-90.0	.0
United States of	Newport, WA NEW	Auxiliary Seismic	AS115	48.03.00	-117.1
United States of	San Juan, PR SJG	Auxiliary Seismic	AS116	18.01	-66.2
United States of	Sacramento, CA	Radionuclide Station	RN70	38.07.00	-121.4
United States of	Sand Point, AK	Radionuclide Station	RN71	55.00.00	-160.0
United States of	Melbourne, FL	Radionuclide Station	RN72	28.03.00	-80.6
United States of	Palmer Station	Radionuclide Station	RN73	-64.5	-64.0
United States of	Ashland, KS	Radionuclide Station	RN74	37.02.00	-99.8
United States of	Charlottesville, VA	Radionuclide Station	RN75	38.00.00	-78.0
United States of	Salchaket, AK	Radionuclide Station	RN76	64.04.00	-147.1
United States of	Wake Island	Radionuclide Station	RN77	19.03	166.06.00
United States of	Midway Islands	Radionuclide Station	RN78	28.00.00	-177.0

United States of	Oahu, HI	Radionuclide Station	RN79	21.05	-158.0
United States of	Upi, Guam	Radionuclide Station	RN80	13.07	144.09.00
United States of	McClellan Central Laboratories Sacremento,	Radionuclide	RL16	TBD	TBD
United States of	Ascension	Hydroacoustic Station	HA10	-8.0	-14.4
United States of	Wake Island	Hydroacoustic Station	HA11	19.03	166.06.00
United States of	Eielson, AK	Infrasound Station	IS53	64.08.00	-146.9
United States of	Siple Station, Antarctica	Infrasound Station	IS54	-75.5	-83.6
United States of	Windless Bight, Anarctica	Infrasound Station	IS55	-77.5	161.08.00
United States of	Newport, WA	Infrasound Station	IS56	48.03.00	-117.1
United States of	Pi?on Flat, CA	Infrasound Station	IS57	33.06.00	-116.5
United States of	Midway Islands	Infrasound Station	IS58	28.01.00	-177.2
United States of	Hawaii, HI	Infrasound Station	IS59	19.06	-155.3
United States of	Wake Island	Infrasound Station	IS60	19.03	166.06.00
Venezuela	Santo Domingo SDV	Auxiliary Seismic	AS117	8.09	-70.6
Venezuela	Puerto la Cruz PCRV	Auxiliary Seismic	AS118	10.02	-64.6
Zambia	Lusaka LSZ	Auxiliary Seismic	AS119	-15.3	28.02.00
Zimbabwe	Bulawayo BUL	Auxiliary Seismic	AS120	TBD	TBD

ALLEGATO C

Le Stazioni del Sistema di Monitoraggio internazionale

ALLEGATO D

Schema tecnico dell'NDC Italiano

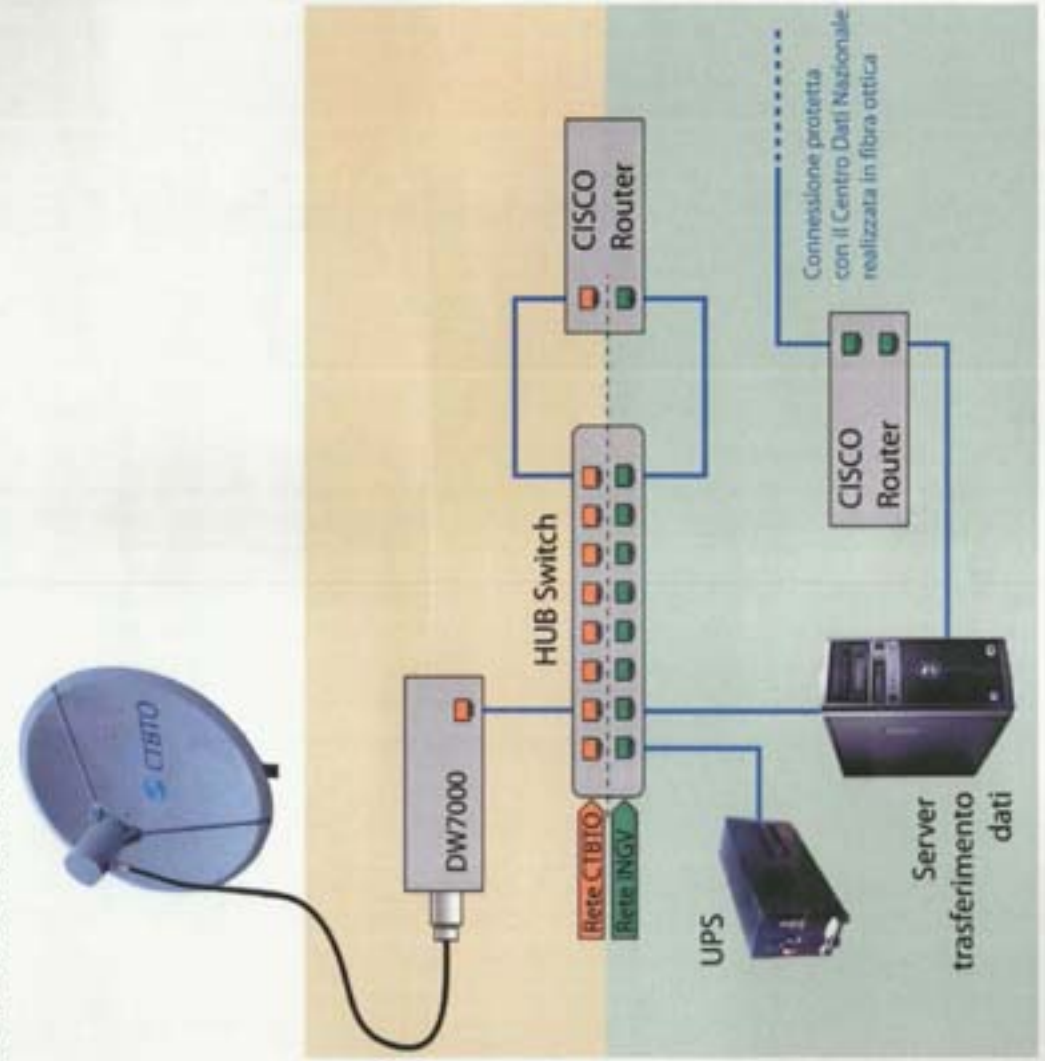
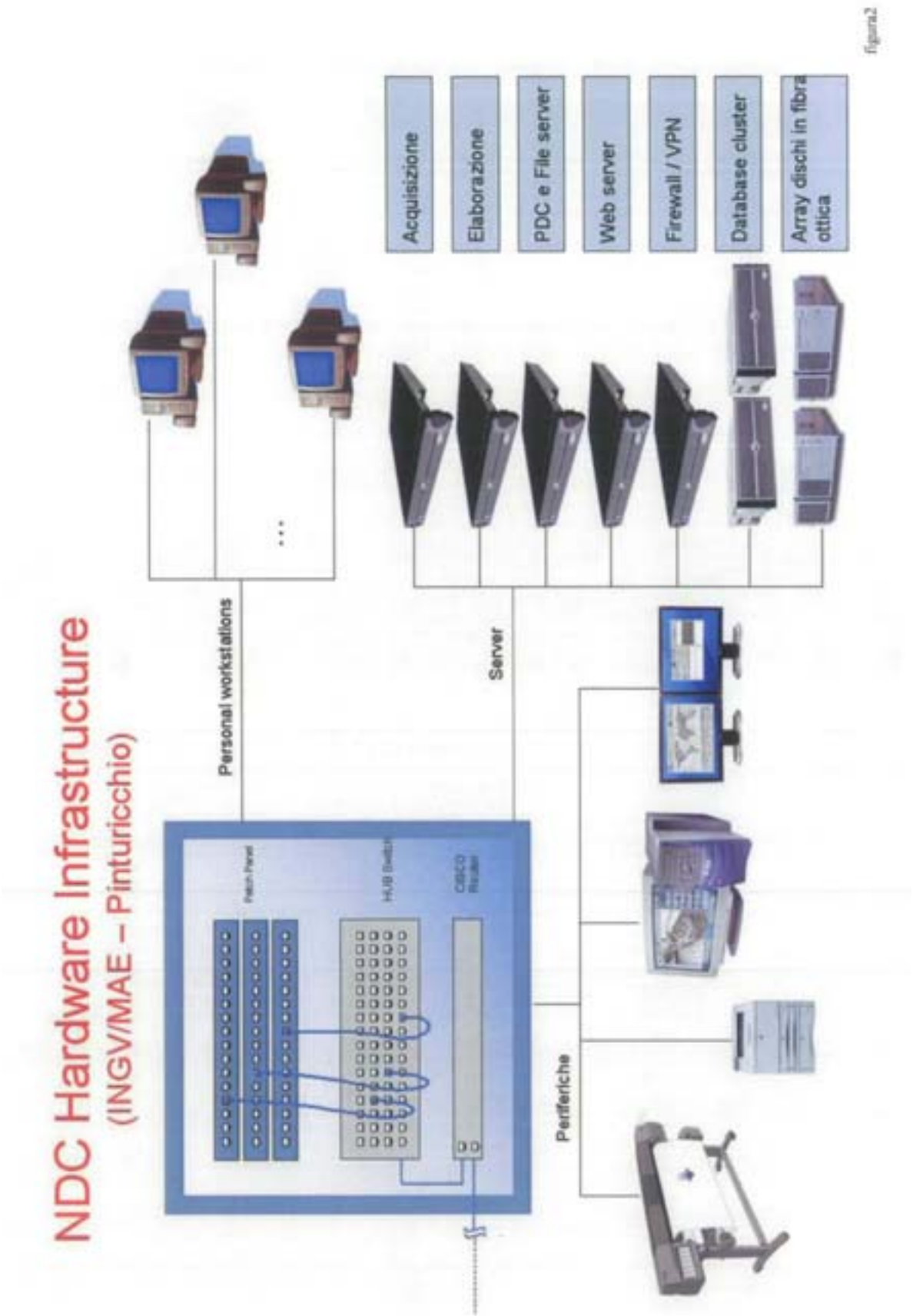


Figura 1


figura2
NDC Hardware Infrastructure
(INGV/MAE – Pinturicchio)
Personal workstations
Server
Periferiche
Acquisizione
Elaborazione
PDC e File server
Web server
Firewall / VPN
Database cluster
Array dischi in fibra ottica

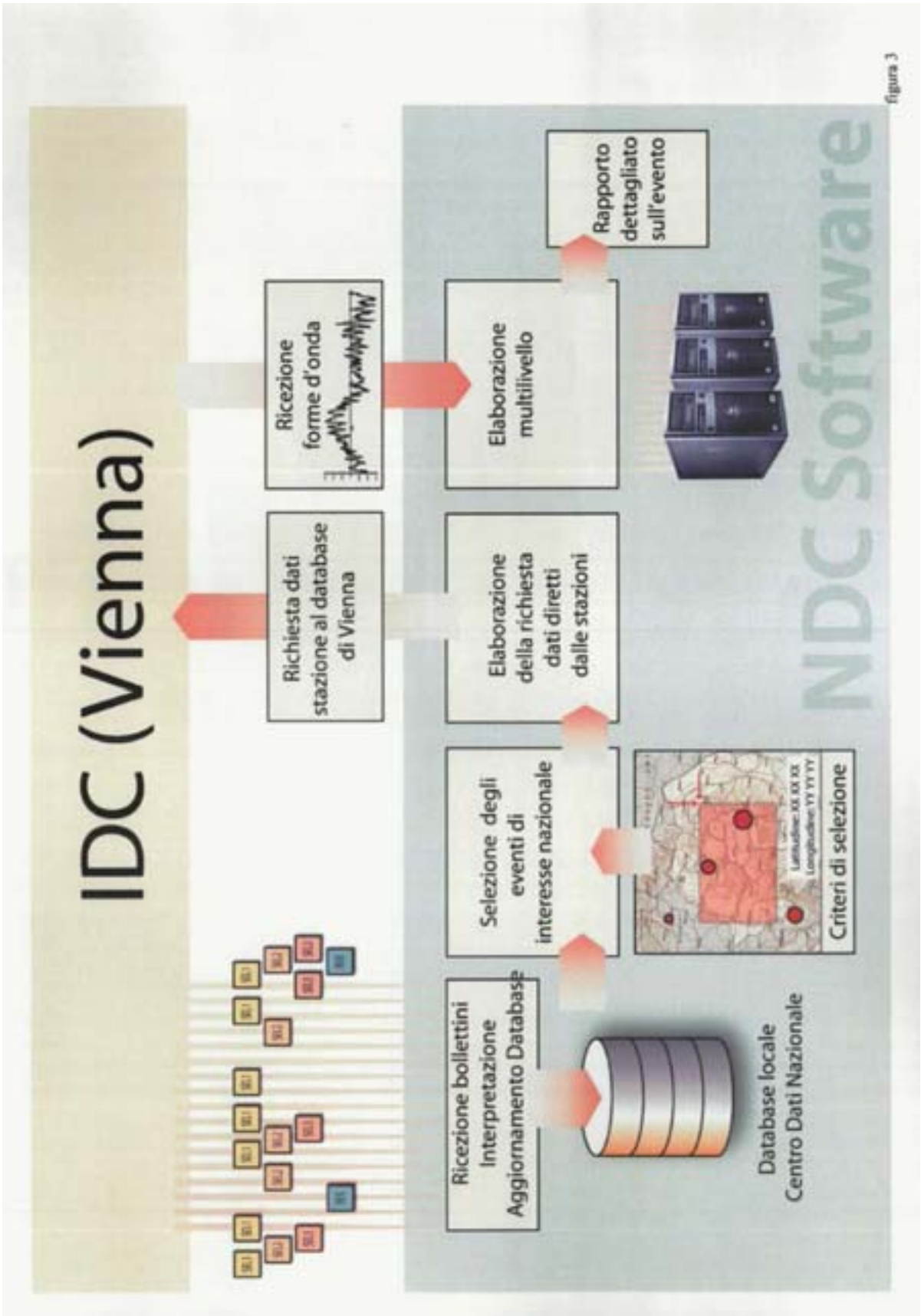

IDC (Vienna)
NDC Software
Ricezione forme d'onda
Richiesta dati stazione al database di Vienna
Elaborazione multilivello
Rapporto dettagliato sull'evento
Elaborazione della richiesta dati diretti dalle stazioni
Selezione degli eventi di interesse nazionale
Criteri di selezione
Ricezione bollettini Interpretazione Aggiornamento Database
Database locale Centro Dati Nazionale

figura 3

Didascalie (allegato D):

Figura 1: Schema a blocchi dell'infrastruttura hardware della porzione NDC residente presso la sede centrale dell'INGV di Roma. Un ricevitore satellitare e relativo computer di controllo, installati presso il Centro Elaborazione Dati, permettono il collegamento continuo con la CTBTO di Vienna. Una linea protetta in fibra ottica a larga banda, quindi, garantisce la connettività, con la necessaria riservatezza dei dati, con la sede dell'NDC di viale Pinturicchio.

Figura 2: Schema a blocchi dell'infrastruttura hardware dell'NDC situata presso l'Unità Tecnica Operativa del MAE di viale Pinturicchio. Una serie di *server* ed elaboratori dedicati svolgono le funzioni di acquisizione, controllo, elaborazione, visualizzazione ed archiviazione dei dati rilevanti di interesse dell'Autorità Nazionale.

Figura 3: Schema logico dell'applicazione sviluppata presso l'NDC e finalizzata alla gestione automatizzata dei bollettini inviati periodicamente dalla CTBTO, contenenti gli eventi individuati dal sistema di monitoraggio internazionale (IMS).