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**ALLIES' PARTICIPATION IN AND CONTRIBUTIONS TO  
RECENT COALITION OPERATIONS**

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We reviewed a number of recent coalition operations (1) to better understand the dimensions, issues, and value of interoperability; (2) to identify the sorts of challenges that can arise in coalition operations and provide a starting point for understanding and addressing interoperability in future coalition operations in the new security environment, in general and in the various case studies in particular; and (3) to lay the groundwork for a discussion of the benefits and costs of coalitions and interoperability.

This appendix presents a short summary of our review of 40 recent coalition operations that included NATO allies and one NATO Alliance operation. It addresses the missions for which interoperability is required, the allies' participation in recent operations, and the contributions that the allies provided.<sup>1</sup>

**MISSIONS FOR WHICH INTEROPERABILITY IS REQUIRED**

As suggested by Table A.1, recent history reveals not only that the United States has operated in coalitions across the entire "spectrum of conflict"—from humanitarian relief and peacekeeping operations in a permissive environment to MTW—but that non-MTWs predominate.

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<sup>1</sup>For more detailed information on our analysis of recent operations, see Larson et al. (1999).

**Table A.1****Forty U.S. Multilateral Operations by Mission Focus**

Mission Focus	Non-U.N.	U.N.
Humanitarian	4	1
Peacekeeping	3	11
Monitoring/observation	5	2
Airlift	2	
No-fly zones	4	
Other peace enforcement	1	
Crisis responses	3	
Strike operations	3	
Major theater war	1	
Total	26	14

This observation is based on analysis of 14 recent United Nations operations and 26 non-U.N. operations (listed in Tables A.2 and A.3) in which the United States operated in coalitions including Operation Allied Force, the only Alliance operation with NATO partners. This recent historical experience dictates that interoperability issues be considered across the entire spectrum of U.S. military operations, and that robust measures—i.e., those that enhance interoperability across a wide range of missions—will generally be preferred over more tailored solutions.

## NATO ALLY PARTICIPATION IN RECENT COALITIONS

### Providing Forces

Although participation in coalition operations has varied greatly from situation to situation and over time (see Table A.4), a number of allies have been particularly reliable in their participation in recent coalitions in which the United States has also participated.

As shown in Table A.4, the most frequent NATO coalition partners in the 40 operations examined were the United Kingdom (29 of 40 operations), France (28), Turkey (23), Germany (22), and Italy and the Netherlands (21 each). Other NATO allies participated in fewer actions with the United States.

**Table A.2**  
**Twenty-Six Recent U.S. Non-U.N. Multilateral Operations**

Operation Name	Location	Mission	Date
Provide Promise	Fmr. Yugo.	HR	Jul 92–Mar 96
Maritime Monitor	Adriatic	MON	06.16.92–11.22.92
Sky Monitor	Bosnia	MON	10.16.92–04.12.93
Deny Flight	Bosnia	NFZ	04.12.93–12.20.95
Sharp Guard	Adriatic	MON	06.15.93–10.02.96
Quick Lift	Croatia	LIFT	July 1995
Deliberate Force	Bosnia	STR	08.29.95–09.21.95
Joint Endeavor (IFOR)	Bosnia	PK/PE	12.20.95–12.20.96
Decisive Enhancement	Adriatic	MON	Dec 95–06.19.96
Decisive Edge	Bosnia	NFZ	Dec 95–Dec 1996
Determined Guard	Adriatic	PK	Dec 96–present
Joint Guard (SFOR I)	Bosnia	PK	12.20.96–6/20/98
Joint Forge (SFOR II)	Bosnia	PK	6/20/98–present
Determined Force	Kosovo	CR	Planned Sept 1998
Eagle Eye	Kosovo	MON	10.16.98–present
Allied Force	Kosovo	STR	3/25/99–6/20/99
Desert Storm	SWA	MTW	01.17.91–02.28.91
Provide Comfort	Kurdistan	HR	04.05.91–12.31.96
Southern Watch	Iraq	NFZ	Aug 1992–present
Vigilant Warrior	Kuwait	CR	Oct 1994–Nov 1994
Northern Watch	Iraq	NFZ	12.31.96–present
Desert Thunder	Iraq	CR	09.03.96–09.04.96
Desert Fox	Iraq	STR	12.16.98–12.19.98
Quick Lift	Zaire	LIFT	09.04.91–Oct 1991
Restore Hope	Somalia	HR	12.11.92–05.04.93
Guardian Assistance	Zaire/Rwanda	HR	11.14.96–12.27.96

NOTES: HR = humanitarian relief; MON = monitoring/observation; LIFT = airlift; PK = peacekeeping; PE = peace enforcement; NFZ = no-fly zone; CR = crisis response; STR = strike; MTW = major theater war.

The implications are twofold. The first is that interoperability planning must be adaptive enough to accommodate the possibility of coalitions of different sizes and composed of different coalition partners. “Plug-and-play” is a concept that is well known at the technological level. But it is also required at the national level to provide for the possibility of different combinations of coalition partners; to manage the comings and goings of coalition members as the mission focus changes and/or missions are added, completed, or abandoned; and to minimize disruptions to the overall coalition effort. This suggests a focus on long-term interoperability solutions,

**Table A.3**  
**Fourteen Recent U.N. Operations with U.S. Participation**

Operation	Location	Mission	Date
UNPROFOR	Former Yugoslavia	PK	Feb 92–Mar 95
UNCRO	Croatia	PK	Mar 95–Jan 96
UNPREDEP	Macedonia	PK	Mar 95–present
UNMIBH	Bosnia	PK	Dec 95–present
UNTAES	Croatia	PK	Jan 96–Jan 98
UNPSG	Croatia	PK	Jan 98–present
UNTSO	Jerusalem	MON	Jun 48–present
UNIKOM	Iraq/Kuwait	MON	Apr 91–present
UNAMIC	Cambodia	PK	Nov 91–Mar 92
UNTAC	Cambodia	PK	Mar 92–Sep 93
UNOMIG	Georgia	PK	Aug 93–present
MINURSO	Sahara	PK	April 1991–present
ONUMOZ	Mozambique	PK	Dec 92–Dec 94
UNOSOM II	Somalia	HR	Mar 93–Mar 95

NOTES: PK = peacekeeping; MON = monitoring/operation; HR = humanitarian relief.

including organizations, doctrine, procedures, and system architectures that can accommodate the dynamic character of coalitions, including transitions.

The second implication is that because the United States' NATO allies vary in their coalition participation with the United States, the United States might be able to achieve important interoperability through a series of bilateral rather than alliance-wide efforts.

### Providing Base Access

In addition to providing forces, coalition members can also provide other types of services and resources; from the vantage point of air power, perhaps the most important of these is base access and support. Although there is a great deal of variance in the provision of bases from operation to operation, of particular interest is the consistent support that Germany and Italy have provided in recent operations in the Balkans.

**Table A.4**  
**NATO Participation in U.S. Multilateral and**  
**U.N. Operations**

Country	U.N.	Non-U.N.	Total
United States	14	26	40
Belgium <sup>a</sup>	8	9	17
Canada	11	8	19
Czech Republic <sup>b</sup>	1	0	1
Denmark <sup>c</sup>	9	5	14
France <sup>a</sup>	10	18	28
Germany <sup>a</sup>	7	15	22
Greece <sup>a</sup>	5	11	16
Hungary <sup>b</sup>	2	1	3
Iceland <sup>d</sup>	1	0	1
Italy <sup>a</sup>	7	14	21
Luxembourg <sup>a</sup>	0	1	1
Netherlands <sup>a</sup>	8	13	21
Norway <sup>d</sup>	10	8	18
Poland <sup>b</sup>	3	0	3
Portugal <sup>a</sup>	6	8	14
Spain <sup>a</sup>	4	11	15
Turkey <sup>d</sup>	7	16	23
United Kingdom <sup>a</sup>	7	22	29

NOTES: "U.N." signifies United Nations operations in which the United States participated with other NATO allies; "non-U.N." is non-U.N. U.S. coalitions that included NATO allies.

<sup>a</sup>Also member of Western European Union.

<sup>b</sup>Joined NATO in 1999.

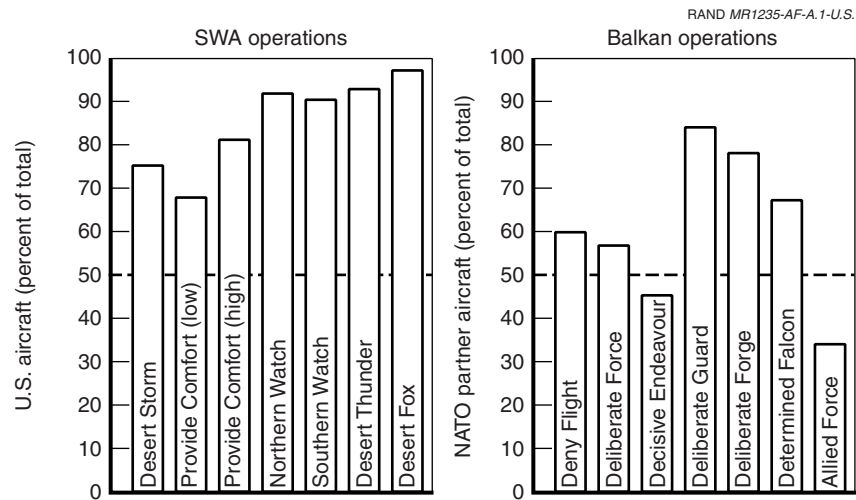
<sup>c</sup>WEU observer.

<sup>d</sup>Associate member of WEU.

## CAPABILITIES CONTRIBUTED TO RECENT COALITIONS

Based on the operations examined, allied contributions appear to vary greatly across operations. As shown in Figure A.1, in SWA, the United States historically has contributed a majority of the aircraft, while in many Balkans operations NATO allies have contributed a majority.

The United States not only is often the single largest contributor to coalition operations but also tends to contribute the broadest range of aircraft (see Figure A.2). Nevertheless, several nations—the United



NOTE: See Table A.2 for a listing of the locations and dates of the operations presented in this figure. See Larson et al. (1999) for a more detailed description of these operations.

**Figure A.1—U.S. Aircraft Contributed to SWA and Balkan Operations**

Kingdom, France, and Italy—also have some breadth in their air capabilities.

As shown in Table A.5, which describes the U.S. and coalition sorties flown in Operation Desert Storm, the broad air power capabilities of the United States allow its air forces the flexibility and robustness to fly the widest range of combat missions.

These observations suggest that important roles can be and are being played by the United States’ coalition partners, and U.S. interoperability planning should take advantage of these capabilities. Nevertheless, because coalition partners vary across operations, the United States may often need to provide the richest mix of forces—or the C3ISR backbone—so as to provide the “glue” for planning and executing the operation.

The examination of recent coalition operations also reveals that non-weapon-system contributions (e.g., access to and use of forward

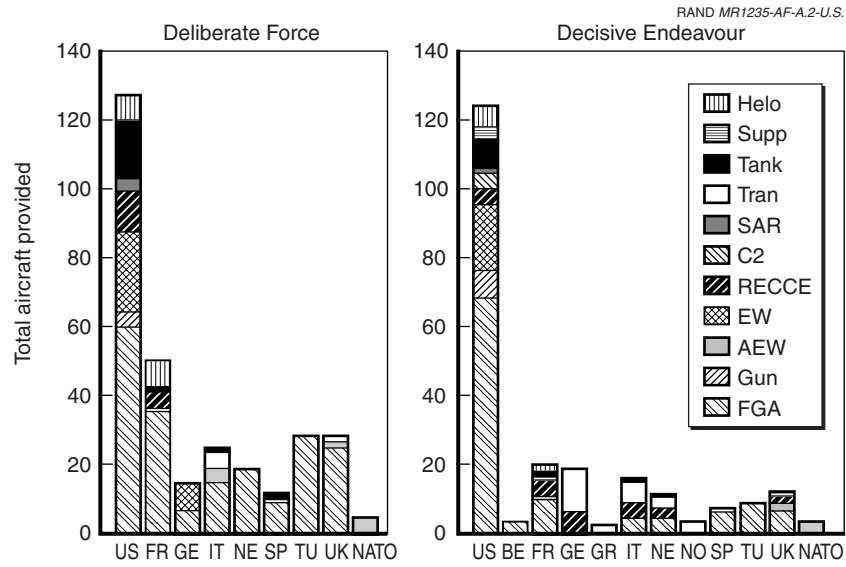


Figure A.2—The United States Brings a Broader Range of Capabilities

air bases for beddown and operation of aircraft, infrastructure, tanker support, and airspace) can be critical contributions that can enhance coalition interoperability.

**Table A.5**  
**U.S. and Coalition Sorties Flown in Operation Desert Storm**

Country	AI	CAS	CAP	SCAP	OCA	C3	RECCE	EW	SOF	LIFT	TANK	SUPP	TRAIN	Other	Total
U.S. total	33,648	6,128	8,803	198	9,115	1,904	2,894	2,856	946	17,657	14,323	1,022	526	1,368	101,388
USAF	24,292	2,120	4,558	0	6,422	604	1,311	1,578	134	16,628	11,024	203	174	358	69,406
USN	5,060	21	4,245	198	1,936	1,143	1,431	265	3	0	2,782	41	262	916	18,303
USMC	4,264	3,956	0	0	757	157	3	343	1	9	461	714	14	4	10,683
USSOCCENT	32	31	0	0	0	0	2	84	808	19	56	64	76	90	1,262
USA	0	0	0	0	0	0	147	586	0	201	0	0	0	0	934
CRRAF	0	0	0	0	0	0	0	0	0	800	0	0	0	0	800
NATO allies	1,970	0	1,729	40	1,264	0	218	80	1	2,529	1,087	40	158	98	9,214
Canada	48	0	693	0	144	0	0	0	0	277	64	0	64	12	1,302
France	531	0	340	0	230	0	62	0	1	855	223	0	4	12	2,258
Italy	135	0	0	0	0	0	0	0	0	13	89	0	0	0	237
UK	1,256	0	696	40	890	0	156	80	0	1,384	711	40	90	74	5,417



Table A.5—continued

Country	AI	CAS	CAP	SCAP	OCA	C3	RECCE	EW	SOF	LIFT	TANK	SUPP	TRAIN	Other	Total
GCC allies	2,659	0	2,543	0	291	8	124	0	1	1,878	485	9	2	0	8,000
Saudi	1,656	0	2,391	0	277	8	118	0	0	1,829	485	9	2	0	6,775
Kuwait	780	0	0	0	0	0	0	0	0	0	0	0	0	0	780
Bahrain	122	0	152	0	14	0	0	0	1	4	0	0	0	0	293
UAE	58	0	0	0	0	0	6	0	0	45	0	0	0	0	109
Qatar	43	0	0	0	0	0	0	0	0	0	0	0	0	0	43
Grand total	38,277	6,128	13,075	238	10,670	1,912	3,236	2,936	948	22,064	15,895	1,071	686	1,466	118,602

SOURCE: *Gulf War Air Power Survey*, Vol. V, Washington, D.C.: Government Printing Office, 1993, Table 64, "Total Sorties by U.S. Service/Allied Country by Mission Type," pp. 232–233.

NOTE: AI = air interdiction; CAS = close air support; CAP = combat air patrol; SCAP = surface combat air patrol; OCA = offensive counterair; C3 = command, control and communications; RECCE = reconnaissance; EW = electronic warfare; SOF = special operations forces; LIFT = airlift; TANK = aerial refueling; SUPP = support; TRAIN = training.