

Tracking and data relay system (TDRS)

TDRS-W

TDRS-E

On-Orbit Networking Technologies

Space Network Communications S-Band and Ka-Band

Global Positioning System (GPS) Constellation

TDRS-Z

S-band

S-band

Ka-band

S-band

L-band

Next Generation Navigator Techniques

TDRS Space-to-ground links

International Space Station

S-band

Control Center
Glenn Research Center

Advance SDR/STRS Communications Technology to TRL-7, Compliant to STRS Common Architecture

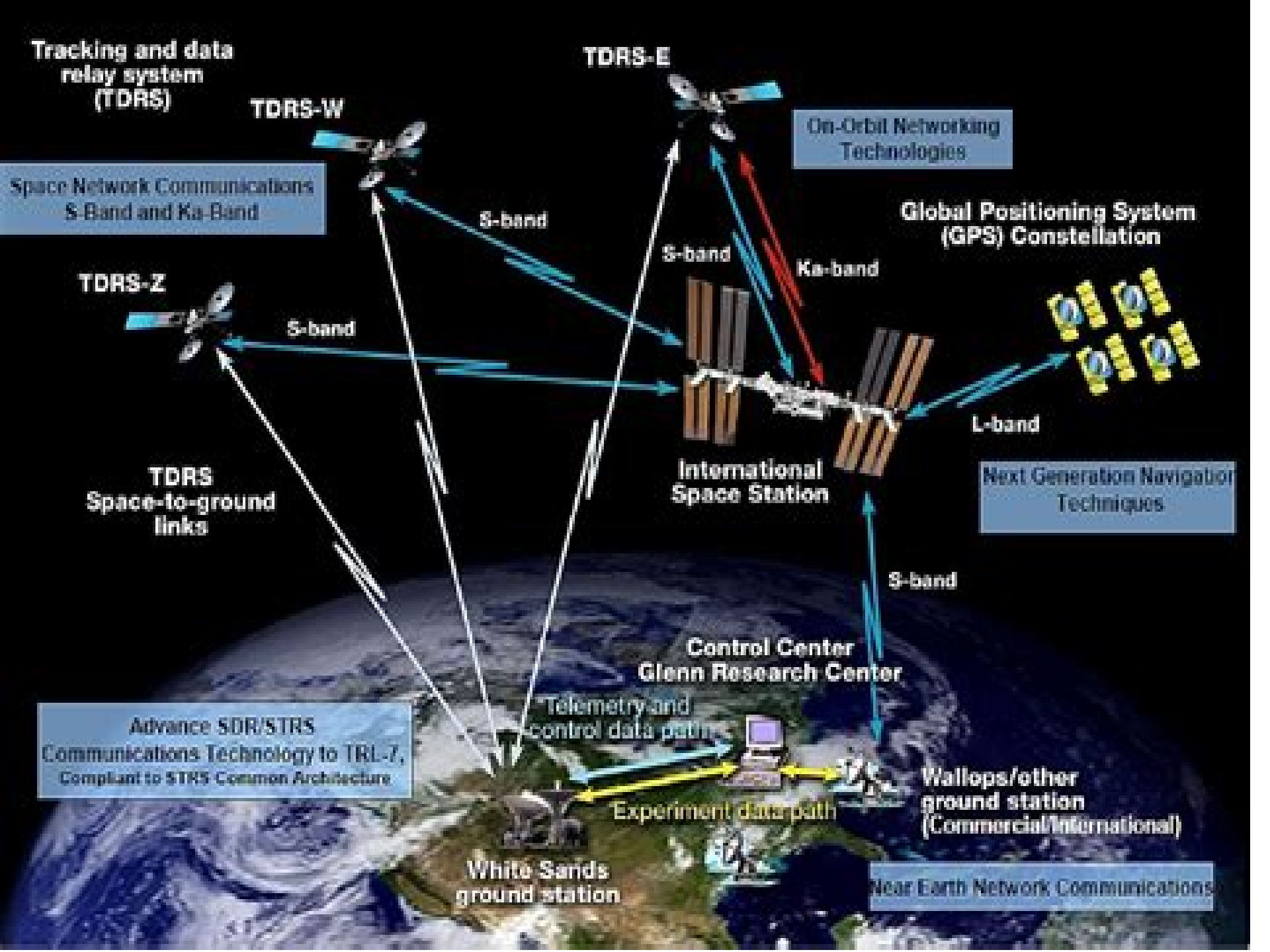
Telemetry and control data path

Experiment data path

Wallops/other ground station (Commercial/International)

White Sands ground station

Near Earth Network Communications



Space Communications Systems

Louise C. Bickford



Space Communications Systems:

Space Communications Systems Richard F. Filipowsky, Eugen I. Muehldorf, 1965 *Deep Space Communications* Jim Taylor, 2016-08-16 DEEP SPACE COMMUNICATIONS A COLLECTION OF SOME OF THE JET PROPULSION LABORATORY S SPACE MISSIONS SELECTED TO REPRESENT THE PLANETARY COMMUNICATIONS DESIGNS FOR A PROGRESSION OF VARIOUS TYPES OF MISSIONS The text uses a case study approach to show the communications link performance resulting from the planetary communications design developed by the Jet Propulsion Laboratory JPL This is accomplished through the description of the design and performance of six representative planetary missions These six cases illustrate progression through time of the communications system s capabilities and performance from 1970s technology to the most recent missions The six missions discussed in this book span the Voyager for fly bys in the 1970s Galileo for orbiters in the 1980s Deep Space 1 for the 1990s Mars Reconnaissance Orbiter MRO for planetary orbiters Mars Exploration Rover MER for planetary rovers in the 2000s and the MSL rover in the 2010s Deep Space Communications Provides an overview of the Deep Space Network and its capabilities Examines case studies to illustrate the progression of system design and performance from mission to mission and provides a broad overview of the mission systems described Discusses actual flight mission telecommunications performance of each system Deep Space Communications serves as a reference for scientists and engineers interested in communications systems for deep space telecommunications link analysis and design control

Space communications systems equipment operator/specialist (AFSC 30456) Douglas J. Callery, 1984 *Satellite Communications Systems* Gerard Maral, Michel Bousquet, Zhili Sun, 2020-02-03 The updated 6th edition of the authoritative and comprehensive textbook to the field of satellite communications engineering The revised and updated sixth edition of *Satellite Communications Systems* contains information on the most recent advances related to satellite communications systems technologies network architectures and new requirements of services and applications The authors noted experts on the topic cover the state of the art satellite communication systems and technologies and examine the relevant topics concerning communication and network technologies concepts techniques and algorithms New to this edition is information on internetworking with the broadband satellite systems more intensive coverage of Ka band technologies GEO high throughput satellite HTS LEO constellations and the potential to support the current new broadband Internet services as well as future developments for global information infrastructure The authors offer details on digital communication systems and broadband networks in order to provide high level researchers and professional engineers an authoritative reference In addition the book is designed in a user friendly format This important text Puts the focus on satellite communications and networks as well as the related applications and services Provides an essential comprehensive and authoritative updated guide to the topic Contains new topics including the space segment ground ground satellite control and network management relevant terrestrial networks and more Includes helpful illustrations tables and problems to enhance learning

Offers a summary at the beginning of each chapter to help understand the concepts and principles discussed Written for research students studying or researching in the areas related to satellite communications systems and networks the updated sixth edition of Satellite Communications Systems offers an essential guide to the most recent developments in the field of satellite communications engineering and references to international standards *Space Communications* Louise C. Bickford,1965 **Satellite Communications Systems and Technology** Bozzano G Luisa,1995-01-01 Satellite Communications Systems and Technology Space Communications Systems and Information Transmission Yu. K. Khodarev,United States. Joint Publications Research Service,1968 *Bandwidth-Efficient Digital Modulation with Application to Deep Space Communications* Marvin K. Simon,2005-02-18 An important look at bandwidth efficient modulations with applications to today s Space program Based on research and results obtained at the California Institute of Technology s Jet Propulsion Laboratory this timely book defines describes and then delineates the performance power and bandwidth of digital communication systems that incorporate a wide variety of bandwidth efficient modulations appropriate for the design and implementation of space communications systems The author compares the performance of these systems in the presence of a number of practical non ideal transmitter and receiver characteristics such as modulator and phase imbalance imperfect carrier synchronization and transmitter nonlinearity Although the material focuses on the deep space applications developed at the Jet Propulsion Laboratory the presentation is sufficiently broad as to be applicable to a host of other applications dealing with RF communications An important contribution to the scientific literature Bandwidth Efficient Digital Modulation with Application to Deep Space Communications was commissioned by the JPL Deep Space Communications and Navigation System Center of Excellence highlights many NASA funded technical contributions pertaining to deep space communications systems is a part of the prestigious Deep Space Communications and Navigation Series The Deep Space Communications and Navigation Series is authored by scientists and engineers with extensive experience in astronautics communications and related fields It lays the foundation for innovation in the areas of deep space navigation and communications by disseminating state of the art knowledge in key technologies **Interoperability of Space Communications Systems** J. E. Freytag,1983 **Satellite Communication Systems Design** S. Tirró,2012-12-06 Writing a comprehensive book on satellite communications requires the command of many technical disciplines and the availability of up to date information on international recommendations system architectures and equipment standards It is therefore necessary to involve many authors each possessing a good level of knowledge in a particular discipline The problem of using a coherent and unambiguous set of definitions and basic terms has been solved by including in the book all the background information needed for understanding satellite communication systems without any major reference to other textbooks specializing in particular disciplines The obvious consequence of this approach has been the large size of the book with the advantages however of practically complete independence from other books more systematic discussion of the

subject matter and better readability After the required background information emphasis has been placed on the discussion of techniques and system design criteria rather than on specific equipment implementation or description of particular systems The book may be divided in five parts as follows The first five chapters provide most of the required background information Chapter 6 is an introductory outline of satellite communication systems Chapters 7 to 13 deal with the various aspects of technical system design Chapter 14 discusses system economics Chapter 15 provides a brief insight into some foreseeable future developments of satellite communications

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Publications, defense satellite communications systems, and satellite access and tracking Catherine A. Gerowski,1986 **Commercial Applications of Space Communications Systems. Report** United States. Congress. House. Committee on Science and Astronautics,1961 *Space Communications and Allocation of Radio Spectrum* United States. Congress. Senate. Commerce,1961 International Reference Guide to Space Launch Systems Steven J.

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