

# 大气波导中多径信道的参数研究

赵小龙<sup>1, 2</sup>, 黄际英<sup>1</sup>

(1. 西安电子科技大学 理学院, 陕西 西安 710071;

2. 天水师范学院 物信学院, 甘肃 天水 741001)

收稿日期 修回日期 网络版发布日期 2008-3-28 接受日期

**摘要** 针对海上大气波导环境中电磁波的多径传播特性, 基于容量有限的Markov生灭过程得到了大气波导中到达接收站的射线径数. 根据差分时延试验数据的近似瑞利分布提出了大气波导中的三参数模型, 基于最小方差准则确定了模型参数. 利用MUSIC算法对多径到达角进行最佳估计, 数值仿真结果表明MUSIC算法极大地提高了到达角位置处的信噪比.

**关键词** [大气波导](#) [多径信道](#) [径数](#) [差分时延](#) [到达角](#)

**分类号** [TN011](#)

## Research on multi-path channel parameters in the marine atmospheric duct

ZHAO Xiao-long<sup>1,2</sup>, HUANG Ji-ying<sup>1</sup>

(1. School of Science, Xidian Univ., Xi'an 710071, China;

2. Tianshui Normal Univ., Tianshui 741001, China)

### Abstract

Based on the characteristics of EM multi-path propagation in the marine atmospheric duct and the Markov birth-and-death process in finite space, the path number in the marine atmospheric duct is presented. The excess delay three-parameter model is proposed according to the experimental data with approximate Rayleigh distribution, and the model parameters are determined by the minimum variance criteria. The angles of arrival (AOA) is estimated by the MUSIC algorithm and simulation results show that the MUSIC algorithm can significantly increase the SNR at the AOA. Finally, the multi-eigenpath channel model is proposed for contributing to the system design and performance optimization of the marine microwave communication system. <BR>

**Key words** [atmospheric duct](#) [multi-path channel](#) [path numbers](#) [excess delay](#) [angles of arrival \(AOA\)](#)

DOI:

通讯作者 赵小龙 [xlzhao76@163.com](mailto:xlzhao76@163.com)

### 扩展功能

#### 本文信息

▶ [Supporting info](#)

▶ [PDF\(738KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

#### 服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

#### 相关信息

▶ [本刊中 包含“大气波导”的 相关文章](#)

▶ 本文作者相关文章

· [赵小龙](#)

·

· [黄际英](#)